

# Exhibit 42

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK

SECURITIES AND EXCHANGE )  
COMMISSION, )

Plaintiff, )

vs. ) Case No.

) 20 Civ. 10832(AT) (SN)

RIPPLE LABS, INC., BRADLEY )  
GARLINGHOUSE, and CHRISTIAN )  
A. LARSEN, )

Defendants. )

VIDEOCONFERENCE VIDEO-RECORDED DEPOSITION OF  
YESHA YADAV

New York, New York

Friday, February 11, 2022

Reported Stenographically By:

PATRICIA A. BIDONDE

Registered Professional Reporter

Realtime Certified Reporter

JOB No. 220211PBI

February 11, 2022

9:21 a.m.

Videoconference Video-Recorded  
Deposition of YESHA YADAV, held at the  
offices of Debevoise & Plimpton, 919  
Third Avenue, New York, New York, before  
Patricia A. Bidonde, Stenographer,  
Registered Professional Reporter,  
Realtime Certified Reporter, Certified  
eDepoze Court Reporter, Notary Public of  
the States of New York, New Jersey, and  
Connecticut.

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IT IS HEREBY STIPULATED AND  
AGREED, by and between the attorneys for  
the respective parties, that all  
objections, except as to the form of the  
questions, shall be reserved to the time  
of the trial.

IT IS FURTHER STIPULATED AND  
AGREED that the filing of the original  
transcript of the examination is waived.

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I N D E X

EXAMINATIONS	PAGE	LINE
BY MS. STEWART	10	6
BY MR. SYLVESTER	84	12

E X H I B I T S

NO.	DESCRIPTION	PAGE	LINE
Exhibit YY-1	Expert report of Professor Yesha Yadav.....	15	24
Exhibit YY-10	"Fintech and the Innovation Trilemma" by Yesha Yadav and Chris Bummer.....	35	4

\*\*\* EXHIBITS BOUND SEPARATELY \*\*\*

DIRECTIONS:	18	23
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P R O C E E D I N G S

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THE VIDEOGRAPHER: We are now on the record. The time is 9:21 a.m. on February 11, 2022. Audio and video recording will continue to take place until all parties agree to go off the record. Please note that microphones are sensitive and may pick up whispering and private conversations.

This is the video-recorded deposition of Yesha Yadav in the matter of Securities and Exchange Commission versus Ripple Labs, Inc., Bradley Garlinghouse, and Christian Larsen. This deposition is being held at Debevoise & Plimpton, 919 Third Avenue, New York, New York.

My name is Christian Bidonde. I am the legal video specialist on behalf of Gradillas. The certified stenographer is Patricia Bidonde on behalf of Gradillas. I am not related to any party in this action nor am I financially interested in the outcome.

1 Counsel will state their  
2 appearances for the record after which  
3 the certified stenographer will swear in  
09:22 4 the witness.

09:22 5 MS. STEWART: Ladan Stewart for  
09:22 6 plaintiff, the SEC, along with Mark  
09:22 7 Sylvester.

09:22 8 MS. ZORNBERG: Lisa Zornberg from  
09:22 9 Debevoise & Plimpton on behalf of Ripple  
09:22 10 Labs.

09:22 11 MS. BUNTING: Kristina Bunting  
09:23 12 from Paul, Weiss, Rifkind, Wharton &  
09:23 13 Garrison on behalf of Christian Larsen.

09:23 14 MR. FORD: Christopher Ford,  
09:23 15 Debevoise & Plimpton, on behalf of  
09:23 16 Ripple Labs.

09:23 17 MR. SOLOMON: Matthew Solomon  
09:23 18 from Cleary Gottlieb Steen & Hamilton on  
09:23 19 behalf of Brad Garlinghouse.

09:23 20 MS. MENTREK: Maureen Mentrek,  
09:23 21 Debevoise & Plimpton, on behalf of  
09:23 22 Ripple Labs.

09:23 23 MR. SYLVESTER: Mark Sylvester on  
09:23 24 behalf of the SEC.

25

1 Y E S H A Y A D A V, called as a witness,  
2 having been duly sworn by a Notary  
3 Public, was examined and testified as  
4 follows:

5 EXAMINATION BY

6 MS. STEWART:

09:23 7 Q. Good morning, Professor Yadav.

09:23 8 As I mentioned, my name is Ladan Stewart. I'm  
09:23 9 going to be asking questions on behalf of the  
09:23 10 SEC. Thank you for indulging us in this, sort  
09:23 11 of, half remote, half in-person deposition  
09:23 12 today.

09:23 13 Have you had your deposition  
09:24 14 taken before?

09:24 15 A. I have not.

09:24 16 Q. So before we begin, let's just  
09:24 17 start with some sort of rules of the road for  
09:24 18 today, the most important of which is that the  
09:24 19 court reporter in the room with you is  
09:24 20 transcribing everything that we say. So in  
09:24 21 order to make a good record for her, it's  
09:24 22 important that we don't talk over each other.

09:24 23 So if you could please wait for  
09:24 24 me to finish my question before you answer,  
09:24 25 and I'll do my best to wait until you finish

09:24 1 your answer before I ask my next question.

09:24 2 Okay?

09:24 3 A. Okay.

09:24 4 Q. And along the same lines, the  
09:24 5 court reporter can't take down nods of the  
09:24 6 head or shakes of the head. So if you can  
09:24 7 give verbal, audible answers to my questions.

09:24 8 Okay?

09:24 9 A. Okay.

09:24 10 Q. And if you don't understand any  
09:24 11 question, let me know and I will rephrase it.  
09:24 12 And if at any time you need a break, just ask  
09:24 13 me and we can go off the record. But I would  
09:24 14 ask that you answer the question that I posed  
09:24 15 to you before we take a break. Okay?

09:24 16 A. Okay.

09:24 17 MS. ZORNBERG: Ladan.

09:25 18 MS. STEWART: Yes.

09:25 19 MS. ZORNBERG: I'd like to also  
09:25 20 just put on the record, as with prior  
09:25 21 depositions, that an objection by any  
09:25 22 counsel for the defendant is sufficient  
09:25 23 to preserve it on behalf of all  
09:25 24 defendants.

09:25 25 MS. STEWART: Okay.

09:25 1 Q. Professor Yadav, is there any  
09:25 2 reason that you can't testify truthfully or  
09:25 3 accurately today?

09:25 4 A. There is not.

09:25 5 Q. Were you retained to provide  
09:25 6 expert services in this case?

09:25 7 A. I am, yes.

09:25 8 Q. Who retained you?

09:25 9 A. I've been retained by Ripple  
09:25 10 Labs, Christian Larsen, and Brad Garlinghouse  
09:25 11 and the lawyers on behalf of the defendants.

09:25 12 Q. Thank you. When were you first  
09:25 13 contacted about this engagement?

09:25 14 A. I was first contacted  
09:25 15 approximately in mid-September about this  
09:25 16 engagement.

09:25 17 Q. In September of what year?

09:25 18 A. 2021.

09:26 19 Q. And who contacted you?

09:26 20 A. I was contacted by Sam Levander  
09:26 21 and Alex Janghorbani of Cleary Gottlieb on  
09:26 22 behalf of Brad Garlinghouse.

09:26 23 Q. How much time have you spent on  
09:26 24 this engagement to date?

09:26 25 A. I can't say exactly. I would say

09:26 1 maybe over a hundred hours certainly.

09:26 2 Q. Do you mean between 100 and 150,  
09:26 3 would you say?

09:26 4 A. I would say so. I can't say  
09:26 5 exactly.

09:26 6 Q. What have you billed so far for  
09:26 7 your services in this matter?

09:26 8 A. I have not actually sent a bill  
09:26 9 yet.

09:26 10 Q. Do you plan to send a bill?

09:26 11 A. I do, yes.

09:27 12 Q. Did you take any steps to prepare  
09:27 13 for today's deposition?

09:27 14 A. I did, yes.

09:27 15 Q. What did you do?

09:27 16 A. I have reviewed my own documents  
09:27 17 in the report, and I've also prepared with  
09:27 18 counsel.

09:27 19 Q. And when you say "counsel," who  
09:27 20 are you referring to?

09:27 21 A. I'm referring to counsel for the  
09:27 22 defendants.

09:27 23 Q. Which counsel specifically did  
09:27 24 you meet with to prepare for your deposition?

09:27 25 A. I have met with counsel for

09:27 1 Ripple Labs, counsel for Brad Garlinghouse and  
09:27 2 counsel for Christian Larsen.

09:27 3 Q. Can you identify the lawyers that  
09:27 4 you've met with?

09:27 5 A. Yes, I can identify Lisa  
09:27 6 Zornberg, Christopher Ford, Meredith Dearborn,  
09:27 7 Kristina Bunting, Michael Schulman, Carly  
09:28 8 Lagrotteria, and Maureen Mentrek. I think  
09:28 9 that should be all, and Matthew Solomon as  
09:28 10 well.

09:28 11 Q. And how many sessions did you  
09:28 12 meet with counsel to prepare for your  
09:28 13 deposition?

09:28 14 A. I can't remember exactly. I  
09:28 15 would say maybe five, five or six. I can't  
09:28 16 say exactly.

09:28 17 Q. How many hours total would you  
09:28 18 say you spent with counsel in preparing for  
09:28 19 your deposition?

09:28 20 A. Again, I can't say exactly. I  
09:28 21 would say between maybe 15 to 20 hours.

09:28 22 Q. And sorry if I'm misremembering,  
09:28 23 but you said other than meeting with counsel,  
09:28 24 you also reviewed documents. Is that right?

09:28 25 A. I reviewed my own report and the

09:28 1 documents cited in the report.

09:29 2 Q. All of the documents cited in  
09:29 3 your report or any particular?

09:29 4 A. I just reviewed --

09:29 5 MS. ZORNBERG: Objection to form.  
09:29 6 You can answer.

09:29 7 A. I reviewed the documents that I  
09:29 8 felt would be useful for my analysis.

09:29 9 Q. Did you review anything else?

09:29 10 A. I focused on reviewing my report.

09:29 11 Q. Did you speak with anyone other  
09:29 12 than the counsel that you mentioned in  
09:29 13 preparing for your deposition?

09:29 14 A. I have not.

09:29 15 Q. Okay. Now I'm going to ask  
09:29 16 Mr. Sylvester to please hand you a copy of  
09:29 17 your report which we had premarked as Exhibit  
09:29 18 YY-1.

09:29 19 A. Thank you.

09:29 20 Q. I'm going to ask you to take a  
09:29 21 look at the document in the binder that was  
09:29 22 just handed to you and tell me if you  
09:29 23 recognize it.

09:29 24 (Exhibit YY-1, Expert report of  
09:29 25 Professor Yesha Yadav, marked for



09:30 1 identification, as of this date.)

09:30 2 A. (Document review.)

09:30 3 MS. STEWART: And for the counsel  
09:30 4 who are participating by Zoom, I'm going  
09:30 5 to ask our paralegal Stella not to  
09:30 6 display the documents on Zoom just  
09:30 7 because, when that happens, I can't see  
09:30 8 Professor Yadav. So we will e-mail you  
09:30 9 the exhibits instead.

09:30 10 A. I recognize my report, yes.

09:30 11 Q. And so it is your expert report  
09:30 12 in this matter?

09:30 13 A. This is my expert report in the  
09:30 14 matter.

09:30 15 Q. And if you look at the page  
09:31 16 following page 71, is that your signature?

09:31 17 A. That is my signature, yes.

09:31 18 Q. When did you finalize this  
09:31 19 report?

09:31 20 A. This report was finalized on  
09:31 21 October the 4th, 2021.

09:31 22 Q. Have you finished all the work  
09:31 23 that you were assigned to do in this case?

09:31 24 A. I believe so. For the moment,  
09:31 25 yes.

09:31 1 Q. Are you planning to submit a  
09:31 2 supplemental report in this case?

09:31 3 A. Not that I know of, no.

09:31 4 Q. And in the pocket of the binder  
09:31 5 that has your report, there should be an  
09:31 6 errata sheet that's dated January 28, 2022.

09:31 7 Do you see that?

09:31 8 A. I do, yes.

09:31 9 Q. Is that your signature on the  
09:32 10 errata sheet?

09:32 11 A. It is, yes.

09:32 12 Q. Did you prepare this errata  
09:32 13 sheet?

09:32 14 A. I did, yes.

09:32 15 Q. Other than the information on  
09:32 16 this errata sheet, is there any inaccuracy  
09:32 17 that you're aware of in your report that you  
09:32 18 would like to correct here today?

09:32 19 A. Not that I know of, no.

09:32 20 Q. Since you signed this report,  
09:32 21 have you become aware of anything that has  
09:32 22 affected or altered the opinions that are set  
09:32 23 forth in the report?

09:32 24 A. I have not, no.

09:32 25 Q. Who wrote this report?

09:32 1 A. I did.

09:32 2 Q. Did anyone help you draft the  
09:32 3 report?

09:32 4 MS. ZORNBERG: You can answer  
09:32 5 without disclosing communications with  
09:32 6 counsel.

09:32 7 THE WITNESS: Sure.

09:32 8 A. I wrote this report. I received  
09:32 9 comments from counsel. In addition I  
09:32 10 requested counsel to help me with various  
09:32 11 research in relation to the preparation of  
09:32 12 this report. But I held the pen. This is my  
09:33 13 opinion and conclusions.

09:33 14 Q. Other than asking counsel for  
09:33 15 comments on the report, did you ask anyone  
09:33 16 else for comments on the report?

09:33 17 A. I did not, no.

09:33 18 Q. Did counsel draft any portion of  
09:33 19 the report?

09:33 20 MS. ZORNBERG: Objection.

09:33 21 MS. STEWART: I'm sorry, what was  
09:33 22 your answer?

09:33 23 MS. ZORNBERG: I'm going to  
09:33 24 direct the witness not to answer to the  
09:33 25 extent that the witness has already --

09:33 1 on grounds that it's prohibited by  
09:33 2 Rule 26 and you're calling for attorney  
09:33 3 work product. The witness has already  
09:33 4 said that she received comments.

09:33 5 MS. STEWART: So you're not going  
09:33 6 to let her answer a yes or no question  
09:33 7 as to whether counsel drafted any  
09:33 8 portion of the report?

09:33 9 MS. ZORNBERG: I'm not, no. I  
09:34 10 think that's -- you're calling for  
09:34 11 privileged information. I'll certainly  
09:34 12 permit questions about, you know, if you  
09:34 13 want to ask questions about what she did  
09:34 14 with comments that she received from  
09:34 15 counsel.

09:34 16 MS. STEWART: Okay.

09:34 17 BY MS. STEWART:

09:34 18 Q. Are you going to follow counsel's  
09:34 19 instructions not to answer that question,  
09:34 20 Professor?

09:34 21 A. I am, yes.

09:34 22 Q. With respect to the comments that  
09:34 23 you received from counsel, did you incorporate  
09:34 24 those into the final version of the report?

09:34 25 MS. ZORNBERG: You can answer.

09:34 1 A. I reflected on the comments, I  
09:34 2 considered the comments, I incorporated the  
09:34 3 comments that I was comfortable with in my own  
09:34 4 language and with my own interpretation and  
09:34 5 thinking.

09:34 6 Q. And you said that you asked  
09:35 7 counsel to undertake various research for you  
09:35 8 in connection with the report. Is that right?

09:35 9 A. That's right, yes.

09:35 10 Q. What research did you ask counsel  
09:35 11 to undertake?

09:35 12 MS. ZORNBERG: You can answer.

09:35 13 A. The research that I asked counsel  
09:35 14 to undertake mainly related to helping locate  
09:35 15 information in relation to the location of the  
09:35 16 exchanges set out in Table A.

09:35 17 Q. And what specifically did you ask  
09:35 18 counsel to do?

09:35 19 A. In general --

09:35 20 MS. ZORNBERG: Again, again, just  
09:35 21 as an instruction, I'll allow you to  
09:35 22 answer. But just focus on what the task  
09:35 23 was that you wanted to perform and not  
09:35 24 get into the specifics of communications  
09:35 25 with counsel.

09:35 1 A. In general, I asked counsel to  
09:35 2 help me locate information in relation to the  
09:35 3 various aspects of the location of the  
09:36 4 different exchanges in Table A.

09:36 5 Q. What steps are you aware that  
09:36 6 counsel took in order to conduct this  
09:36 7 research?

09:36 8 A. I believe that counsel consulted  
09:36 9 with various databases and sources to provide  
09:36 10 the information.

09:36 11 Q. What databases did counsel  
09:36 12 consult?

09:36 13 A. I believe that counsel consulted  
09:36 14 databases including CipherTrace, S&P  
09:36 15 Intelligence, as well as reputable news  
09:36 16 sources.

09:36 17 Q. And you mentioned, in addition to  
09:36 18 databases, sources. Any other sources that  
09:36 19 you're aware of that counsel consulted?

09:36 20 A. I believe the --

09:36 21 MS. ZORNBERG: Object to form.

09:36 22 You can answer.

09:36 23 A. I believe the focus here was on  
09:37 24 the CipherTrace and S&P databases, as well as  
09:37 25 reputable news sources that are cited in this

09:37 1 report.

09:37 2 Q. And when you refer to counsel  
09:37 3 undertaking this research, just to be clear,  
09:37 4 who are you referring to?

09:37 5 A. I'm referring to counsel for the  
09:37 6 defendants.

09:37 7 Q. Were you involved in this  
09:37 8 research process?

09:37 9 A. I was constantly involved as part  
09:37 10 of the conversations surrounding the research,  
09:37 11 yes.

09:37 12 Q. How were you involved?

09:37 13 MS. ZORNBERG: I'm just going to  
09:37 14 give the instruction not to disclose  
09:37 15 your communications with counsel. I  
09:37 16 think these questions are approaching  
09:37 17 the line, especially in light of the  
09:37 18 witness' answers so far.

09:37 19 But if you want to -- if you want  
09:37 20 to answer by specifically providing  
09:37 21 information on what you did as part of  
09:38 22 your research, that's fine.

09:38 23 A. I received information. I  
09:38 24 reviewed information. I incorporated the  
09:38 25 insights and information that I wished to

09:38 1 include in the report as part of my analysis.

09:38 2 Q. What, if anything, did you do to  
09:38 3 check the accuracy of the research that  
09:38 4 counsel performed?

09:38 5 A. I went through the footnotes, I  
09:38 6 checked the sources, made sure I was  
09:38 7 comfortable with the databases that were being  
09:38 8 consulted, and carefully read through the  
09:38 9 documents provided to me.

09:38 10 Q. Did you check each and every  
09:38 11 source?

09:38 12 A. I attempted to check each and  
09:38 13 every source, yes.

09:38 14 Q. Were there some that you were not  
09:38 15 successful in checking?

09:38 16 A. Not that I can recall, sitting  
09:39 17 here today.

09:39 18 Q. And did you carefully read  
09:39 19 through all of the documents provided to you?

09:39 20 MS. ZORNBERG: Objection to form.

09:39 21 A. I have --

09:39 22 Q. Well, just to be clear, I thought  
09:39 23 that your previous answer was that you  
09:39 24 carefully reviewed the documents. If that's  
09:39 25 not what you said, I apologize.



09:39 1 But did you review all the  
09:39 2 documents provided to you?

09:39 3 MS. ZORNBERG: Objection. Asked  
09:39 4 and answered.

09:39 5 You can answer.

09:39 6 A. I've gone through all the  
09:39 7 documents provided to me as part of the -- as  
09:39 8 part of the footnotes.

09:39 9 Q. What, if anything, did you do to  
09:39 10 check the thoroughness of the research that  
09:39 11 counsel performed?

09:39 12 MS. ZORNBERG: Object to form.

09:39 13 You can answer.

09:39 14 A. I did my own research in relation  
09:39 15 to the -- in relation to the matters detailed  
09:39 16 in the report. I went through counsel's  
09:39 17 documents that were sent to me and made sure I  
09:39 18 was comfortable.

09:39 19 Q. When you say that you did your  
09:40 20 own research, what are you referring to?

09:40 21 A. Referring to my own research and  
09:40 22 experience in relation to the matters being  
09:40 23 dealt with in the report, as well as ensuring  
09:40 24 that I was comfortable with the databases that  
09:40 25 were consulted as part of this research.

09:40 1 Q. Did you do any research in  
09:40 2 connection with the footnotes that you're  
09:40 3 referring to independent of the research that  
09:40 4 counsel performed?

09:40 5 A. I did research  
09:40 6 independent -- independently. That is  
09:40 7 referenced throughout my report. My  
09:40 8 independent research was certainly a part of  
09:40 9 my process in preparing this report.

09:40 10 Q. What did you do to make sure that  
09:40 11 you were comfortable with the databases that  
09:40 12 counsel was using for its research?

09:41 13 A. I had heard of the databases  
09:41 14 before. Certainly in one case, I had used  
09:41 15 that database myself, or reports from that  
09:41 16 database myself in relation to S&P. And I  
09:41 17 made sure that I was comfortable with  
09:41 18 CipherTrace, and I was very comfortable. It  
09:41 19 was a firm that I had heard of before.

09:41 20 Q. Taking a look at Exhibit A to  
09:41 21 your report, if you can turn to that, please.  
09:41 22 Are you there, Professor?

09:41 23 A. I am. I am here.

09:41 24 Q. Is Exhibit A -- I'm sorry. Does  
09:42 25 Exhibit A to your report include your CV?

09:42 1 A. It does, yes.

09:42 2 Q. Sitting here today, are you aware  
09:42 3 of any inaccuracies in your CV as presented in  
09:42 4 Exhibit A?

09:42 5 A. There are no inaccuracies in the  
09:42 6 CV. However, it does -- it does need updating  
09:42 7 to reflect various conferences that I've been  
09:42 8 attending and presentations that I've been  
09:42 9 giving over the course of the last year as  
09:42 10 well as early this year.

09:42 11 Including, for example, several  
09:42 12 presentations in relation to the regulation of  
09:42 13 cryptocurrency exchanges that I gave towards  
09:42 14 the latter half of 2021, as well as talks that  
09:42 15 I've given this year, including a talk last  
09:42 16 week in relation to the insolvency of  
09:42 17 cryptocurrency exchanges.

09:42 18 And I'm happy to talk more about  
09:42 19 these conferences and talks that I've been  
09:43 20 giving that are not reflected in this current  
09:43 21 draft of the CV.

09:43 22 Q. Okay. Thank you. Does the  
09:43 23 education section of your CV accurately list  
09:43 24 the degrees that you earned?

09:43 25 A. Yes, it does.

09:43 1 Q. Do you hold any professional  
09:43 2 licenses?

09:43 3 A. Yes, I am qualified to practice  
09:43 4 as a solicitor in England and Wales in the UK.

09:43 5 Q. Have you held any other  
09:43 6 professional licenses in the past?

09:43 7 A. I don't believe so, no.

09:43 8 Q. Have you ever been the subject of  
09:43 9 a disciplinary action related to your  
09:43 10 professional activity?

09:43 11 A. I have not, no.

09:43 12 Q. And you've been a professor at  
09:43 13 Vanderbilt Law School since 2006. Is that  
09:43 14 right?

09:43 15 A. No, I've been a professor at  
09:44 16 Vanderbilt Law School since 2011.

09:44 17 Q. Okay. Are you currently tenured?

09:44 18 A. I am, yes.

09:44 19 Q. When did you become tenured?

09:44 20 A. I believe I became tenured in  
09:44 21 2016. I should know that better, but I think  
09:44 22 it was 2016.

09:44 23 Q. Have you testified as an expert  
09:44 24 witness before?

09:44 25 A. I have not.

09:44 1 Q. Have you submitted an expert  
09:44 2 report before?

09:44 3 A. I have not.

09:44 4 Q. Have you been retained as an  
09:44 5 expert witness before?

09:44 6 A. I have not.

09:44 7 Q. When did you first hear of  
09:44 8 Ripple?

09:44 9 A. I first came across Ripple as  
09:45 10 part of my general work into financial  
09:45 11 markets. I can't recall exactly when, but I  
09:45 12 came across Ripple as part of my everyday  
09:45 13 research work.

09:45 14 Q. And when did you first hear of  
09:45 15 XRP?

09:45 16 A. Again, I came across XRP as part  
09:45 17 of my normal research into financial markets.  
09:45 18 Again, I can't recall at what time and when.

09:45 19 Q. And just so the record is clear,  
09:45 20 when I said "Ripple," I'm referring to Ripple  
09:45 21 Labs. Is that right?

09:45 22 MS. ZORNBERG: Object to form.

09:45 23 A. I'm sorry, could you --

09:45 24 Q. When I asked you questions about  
09:45 25 Ripple, I was referring to Ripple Labs. Were

09:45 1 your answers also referring to Ripple Labs?

09:45 2 A. Yes. Ripple Labs.

09:45 3 Q. And just so the record is clear,  
09:45 4 what is XRP?

09:45 5 A. XRP is a token that is a part of  
09:45 6 the XRP ledger that is -- that is a --  
09:46 7 produced by the XRP ledger.

09:46 8 Q. And what is the XRP ledger?

09:46 9 A. The XRP ledger is a ledger that  
09:46 10 is providing validation in relation to  
09:46 11 transactions in XRP as well as other  
09:46 12 currencies that are part of -- that are a part  
09:46 13 of the ledger.

09:46 14 Q. Prior to your retention as an  
09:46 15 expert in this matter, what did you know about  
09:46 16 Ripple?

09:46 17 A. The knowledge that I had about  
09:46 18 Ripple was a fairly general knowledge in  
09:46 19 relation to the role of Ripple as a payment  
09:46 20 services facilitator.

09:46 21 Q. And how did you gain this  
09:47 22 knowledge about Ripple prior to your retention  
09:47 23 for this case?

09:47 24 A. It was part of conversations I  
09:47 25 had with academics as well as a part of the

09:47 1 general research ecosystem that I work in in  
09:47 2 relation to Fintech.

09:47 3 Q. And prior to your retention as an  
09:47 4 expert witness, what did you know about XRP?

09:47 5 A. What I knew about XRP related to  
09:47 6 its role as a cryptocurrency that facilitated  
09:47 7 international payment transactions.

09:47 8 Q. And how did you learn this  
09:47 9 information about XRP?

09:47 10 MS. ZORNBERG: Object to form.

09:47 11 A. Again, I can't say exactly. I  
09:47 12 had various conversations with academics as  
09:47 13 well as part of the general Fintech system  
09:47 14 that I am researching in.

09:48 15 Q. Have you ever met Chris Larsen?

09:48 16 A. I have not.

09:48 17 Q. Have you ever heard Chris Larsen  
09:48 18 speak?

09:48 19 A. No, I don't believe I have.

09:48 20 Q. Have you ever met Brad  
09:48 21 Garlinghouse?

09:48 22 A. I have not.

09:48 23 Q. Have you ever heard  
09:48 24 Mr. Garlinghouse speak?

09:48 25 A. I don't believe I have.

09:48 1 Q. Were you a speaker at the DC  
09:48 2 Fintech Week virtual experience in October  
09:48 3 2021?

09:48 4 A. I was, yes.

09:48 5 Q. Do you recall whether  
09:48 6 Mr. Garlinghouse was also a speaker at that  
09:48 7 conference?

09:48 8 A. I believe he was in the program.

09:48 9 Q. But you don't believe that you  
09:48 10 heard him speak?

09:48 11 A. No, I was not able to be there  
09:49 12 for his session.

09:49 13 Q. And the same question with  
09:49 14 respect to that conference in October of 2020.  
09:49 15 Were you a speaker at that conference in  
09:49 16 October 2020?

09:49 17 A. At which conference, sorry?

09:49 18 Q. At the same -- the DC week  
09:49 19 virtual experience?

09:49 20 MS. ZORNBERG: Objection. And  
09:49 21 just to note, unless I misheard, I  
09:49 22 thought you previously said the date was  
09:49 23 October 2021. And now you're saying  
09:49 24 October 2020.

09:49 25 Can you just clarify the year



09:49 1 that you're addressing?

09:49 2 Q. Sure. I'm asking about both  
09:49 3 years. So I think my initial question was  
09:49 4 about October 2021.

09:49 5 And now I want to ask the same  
09:49 6 question about whether you also spoke at the  
09:49 7 same conference the year before in  
09:49 8 October 2020.

09:49 9 A. I believe I did.

09:49 10 Q. And do you recall if  
09:49 11 Mr. Garlinghouse was a speaker at that  
09:49 12 conference in October 2020?

09:49 13 A. I really can't recall. I did not  
09:49 14 attend his session, if he would have been in  
09:49 15 the program.

09:50 16 Q. Prior to your retention as an  
09:50 17 expert, did you have any relationship with any  
09:50 18 Ripple board member?

09:50 19 A. I -- I'm not sure if he is a  
09:50 20 board member. I do know a professor who I  
09:50 21 believe may be affiliated, potentially. But  
09:50 22 I'm not sure.

09:50 23 Q. And who is the professor you're  
09:50 24 referring to?

09:50 25 A. Michael Barr.

09:50 1 Q. Prior to your retention as an  
09:50 2 expert, did you have any relationship with any  
09:50 3 Ripple executive?

09:50 4 A. No.

09:50 5 Q. Are you on the advisory board for  
09:51 6 Leaf Global Fintech?

09:51 7 A. Am I? I am not sure. It's --  
09:51 8 one of the my students was a person who was  
09:51 9 directing that. I asked him that -- not to be  
09:51 10 on the board. So I don't believe I am.

09:51 11 Q. Do you have any connection with  
09:51 12 Leaf Global Fintech?

09:51 13 A. All -- I just -- I know Nat  
09:51 14 Robinson, who I believe started it. But  
09:51 15 beyond that, no.

09:51 16 Q. Before your retention in this  
09:51 17 case, did you have any meetings or  
09:51 18 conversations with anyone affiliated with  
09:51 19 Ripple?

09:51 20 A. Affiliated in what sense?

09:51 21 MS. ZORNBERG: Yeah, object to  
09:51 22 form of that question.

09:51 23 Q. Anyone who was an employee,  
09:52 24 executive, board member, shareholder, or  
09:52 25 otherwise affiliated with Ripple?

09:52 1 MS. ZORNBERG: Objection.

09:52 2 Q. I believe you can answer but --

09:52 3 MS. STEWART: Lisa, you can  
09:52 4 correct me.

09:52 5 MS. ZORNBERG: Objection noted.  
09:52 6 You can answer if you understand  
09:52 7 the question.

09:52 8 A. I'm not sure I understand the  
09:52 9 question. It's a very broad question. I'm  
09:52 10 not sure who is affiliated with Ripple  
09:52 11 exactly. The only person I know who may be  
09:52 12 potentially at some point is Michael Barr, who  
09:52 13 is a colleague of mine at Michigan University.

09:52 14 Q. Do you own any XRP?

09:52 15 A. I do not.

09:52 16 Q. Have you ever owned XRP?

09:52 17 A. I have not.

09:52 18 Q. Do you expect to receive any  
09:53 19 compensation in XRP in this case?

09:53 20 A. I do not.

09:53 21 Q. Do you own other  
09:53 22 cryptocurrencies?

09:53 23 A. I do not.

09:53 24 Q. Have you ever?

09:53 25 A. I have not.

09:53 1 MS. STEWART: Mark, can we hand  
09:53 2 out Exhibit YY-10.

09:53 3 A. Thank you very much.

09:53 4 (Exhibit YY-10, "Fintech and the  
09:53 5 Innovation Trilemma" by Yesha Yadav and  
09:53 6 Chris Bummer, marked for identification,  
09:53 7 as of this date.)

09:53 8 Q. Now, professor, take however long  
09:53 9 you need to examine YY-10. And I'm going to  
09:53 10 ask you if you recognize it.

09:53 11 A. (Document review.)

09:55 12 Yes, it's my article with  
09:55 13 Professor Chris Brummer.

09:55 14 Q. And the title of it is "Fintech  
09:56 15 and the Innovation Trilemma." Is that right?

09:56 16 A. That's right, yeah.

09:56 17 Q. Did you discuss digital assets in  
09:56 18 this article?

09:56 19 A. I believe digital assets are  
09:56 20 referenced in this article, yes.

09:56 21 Q. Did you discuss XRP in this  
09:56 22 article?

09:56 23 A. It is very briefly referenced in  
09:56 24 the first page, I believe.

09:56 25 Q. And that's the page that is

09:56 1       numbered on top 237. Is that right?

09:56 2           A.     That's right.

09:56 3           Q.     And that reference is to Ripple's  
09:56 4       XRP. Is that right?

09:56 5           A.     It is, yes.

09:57 6           Q.     Why did you reference "Ripple's  
09:57 7       XRP" as opposed to just "XRP"?

09:57 8           A.     It was a sloppy use of wording on  
09:57 9       my part and my coauthor's part. We recognized  
09:57 10      the separation; however, it was just a  
09:57 11      colloquial and sloppy usage.

09:57 12          Q.     And if you look at page 277 of  
09:57 13      the article, the fourth line down, do you see  
09:57 14      another reference to Ripple's XRP?

09:57 15          A.     Yes.

09:57 16          Q.     And why did you use this term  
09:57 17      "Ripple's XRP" here?

09:57 18          A.     Again, it was sloppy, sloppiness  
09:57 19      on our part.

09:57 20          Q.     And when you say "sloppy," what  
09:58 21      do you mean?

09:58 22          A.     We should have been more careful  
09:58 23      in referencing XRP as a separate  
09:58 24      cryptocurrency distinct from Ripple Labs.

09:58 25          Q.     Have you ever written a

09:58 1 publication critiquing any aspect of the US  
09:58 2 regulatory regime?

09:58 3 MS. ZORNBERG: Objection.

09:58 4 A. Many, I believe. It's -- I'm not  
09:58 5 very sure, the question is very broad as to  
09:58 6 the definition of "critique." But I certainly  
09:58 7 write publications on the various aspects of  
09:58 8 US regulation in different context.

09:58 9 Q. And are some of these  
09:58 10 publications critical of the US regulatory  
09:58 11 regime?

09:58 12 MS. ZORNBERG: Objection to form.

09:58 13 A. I'm not really sure what you mean  
09:59 14 about "critical," about the regulatory regime.

09:59 15 Q. What is it that you don't  
09:59 16 understand about that?

09:59 17 A. It's just very --

09:59 18 MS. ZORNBERG: Object to form.

09:59 19 A. It's very broad. The definition  
09:59 20 of "critique" is not necessarily a  
09:59 21 particularly accurate description. It  
09:59 22 critiques certainly some aspects of it. But  
09:59 23 the idea here is to improve and enhance the  
09:59 24 framework that is currently in place in  
09:59 25 different context.

09:59 1 Q. When you say "the idea here,"  
09:59 2 what are you referring to?

09:59 3 A. My goal in my research.

09:59 4 Q. If the word "critique" is not an  
09:59 5 appropriate word, how would you describe your  
09:59 6 research as it applies to the US regulatory  
09:59 7 regime?

09:59 8 MS. ZORNBERG: Object to form.

09:59 9 A. I suppose "critique" can be used.  
09:59 10 The word is really to try and examine  
10:00 11 innovations that are currently underway in the  
10:00 12 marketplace, and to think about ways in which  
10:00 13 our current regulatory regime fits the  
10:00 14 innovations that are developing in the market  
10:00 15 today.

10:00 16 Q. And is it your view in general  
10:00 17 that the corrupt regulatory regime does not  
10:00 18 fit the innovations in the market today?

10:00 19 MS. ZORNBERG: Object to form.

10:00 20 A. That's very broad. I'm sorry.  
10:00 21 It's a very broad question.

10:00 22 Q. Okay. So tell me what your view  
10:00 23 is.

10:00 24 MS. ZORNBERG: Object to form.  
10:00 25 View of what?

10:00 1 Q. You started talking about the  
10:00 2 goals of your research. Right? Correct?

10:00 3 A. I can --

10:00 4 MS. ZORNBERG: Object to form.  
10:00 5 Put a question.

10:00 6 Q. You were referring to the goals  
10:00 7 of your research with respect to innovations  
10:00 8 and the US regulatory regime. Correct?

10:01 9 MS. ZORNBERG: Object to form.

10:01 10 A. Yes, I'm happy to go through my  
10:01 11 papers with you and to discuss particular  
10:01 12 aspects of my thesis in relation to what would  
10:01 13 substantiate the overall framework that I  
10:01 14 have.

10:01 15 So, for example, in relation to  
10:01 16 my research in market microstructure, I  
10:01 17 examined innovations in the ways in which our  
10:01 18 trading systems have evolved to incorporate  
10:01 19 high-speed traders, high-speed communication  
10:01 20 technologies, and then to look at aspects of  
10:01 21 our regulatory system that perhaps are less  
10:01 22 well adapted than they should be to these  
10:01 23 innovations in the marketplace.

10:01 24 So, for example, in "The Failure  
10:01 25 of Liability in Modern Markets," which was



10:01 1 published in Virginia Law Review, I detail  
10:01 2 aspects of our liability structure, for  
10:01 3 example, in relation to negligence, in  
10:01 4 relation to intent, in relation to strict  
10:01 5 liability, that do not necessarily fit within  
10:02 6 a paradigm where we have extremely high-speed  
10:02 7 traders in an interconnected marketplace.

10:02 8 What I argue in that paper is  
10:02 9 that the lack of a proper fit of the liability  
10:02 10 structure to a modern market structure can  
10:02 11 create costs for different participants in the  
10:02 12 market, as well as for the structural  
10:02 13 integrity of the marketplace as a whole.

10:02 14 In addition, looking at why  
10:02 15 the -- looking at inefficiencies in the  
10:02 16 algorithmic trading market, I have written a  
10:02 17 paper in the Vanderbilt Law Review on how  
10:02 18 algorithmic trading undermines efficiency in  
10:02 19 capital markets.

10:02 20 Again, that paper examines  
10:02 21 innovations in market structure; notably  
10:02 22 high-speed trading, to think about ways in  
10:02 23 which the disclosure paradigm that we have  
10:02 24 doesn't exactly fit in a market in which time  
10:03 25 horizons tend to be pretty short term in

10:03 1 nature, and to try to think of ways in which  
10:03 2 we might incorporate a more long-term vision  
10:03 3 into incorporating fundamental information  
10:03 4 into our disclosure regimes.

10:03 5 Similarly, in the oversight  
10:03 6 failure in securities markets, I examine  
10:03 7 innovations in relation to platforms and  
10:03 8 platform design.

10:03 9 So here I look at competition in  
10:03 10 the marketplace to bring in insights about  
10:03 11 dark pools, particularly as they're  
10:03 12 colloquially known, alternative trading  
10:03 13 systems, and to think about ways in which  
10:03 14 exchanges and dark pools can exercise  
10:03 15 oversight across the marketplace as a whole  
10:03 16 that is innovating rapidly to include  
10:03 17 competition and innovation in platform design.

10:03 18 In addition, more recently, I've  
10:03 19 been working on projects in relation to the US  
10:03 20 treasury markets, US treasury market  
10:03 21 microstructure, which has seen tremendous  
10:04 22 innovation over the last ten years, and where  
10:04 23 regulation has not kept pace at all to meet  
10:04 24 the structure of this marketplace.

10:04 25 There I have written two papers,

10:04 1 one is my own and one is coauthored, that  
10:04 2 examine the ways in which US treasury market  
10:04 3 microstructure, as well as the Ripple market  
10:04 4 microstructure and their regulation, do not  
10:04 5 fit together given the evolving paradigms  
10:04 6 within our marketplace today.

10:04 7 In the broken bond market, again,  
10:04 8 I examine the ways in which our regulation is  
10:04 9 not -- is insufficient to provide a way for  
10:04 10 the bond market to offer efficiency in the  
10:04 11 marketplace.

10:04 12 And, again, this paper provides  
10:04 13 ways in which to think about -- think about  
10:04 14 innovations within private governance that we  
10:04 15 could bring in that could help make the bond  
10:04 16 market a more amenable one for efficiency.

10:04 17 So, you know, thinking through  
10:04 18 this, sort of, line of projects, I have also  
10:05 19 papers on Fintech and the Innovation Trilemma,  
10:05 20 which you already mentioned, as well as one  
10:05 21 looking at international Fintech that examines  
10:05 22 the challenges that regulators face when  
10:05 23 dealing with Fintech Innovations.

10:05 24 What we do in that paper is that  
10:05 25 we look at the ways in which Fintech is

10:05 1 different from past iterations of financial  
10:05 2 innovation. We examine the use of algorithms.  
10:05 3 We examine the use of big data. We examine  
10:05 4 the entry of smaller nontraditional firms into  
10:05 5 the financial ecosystem, and think about the  
10:05 6 ways in which that poses special and new  
10:05 7 challenges for regulators.

10:05 8 In addition, I have a few papers,  
10:05 9 as I've referenced in my CV, in relation to  
10:05 10 cryptocurrency exchanges. And here, I think  
10:05 11 about ways or I'm proposing to think about  
10:05 12 ways that cryptocurrency exchanges are  
10:05 13 evolving and to help make their evolution as  
10:05 14 something that can be a positive for the  
10:06 15 regulatory oversight of the market as a whole.

10:06 16 So it's very hard for me to  
10:06 17 provide a, sort of -- you know, without going  
10:06 18 through individual papers to provide a, sort  
10:06 19 of, overarching description, as it were.

10:06 20 But my goal here, as you can see,  
10:06 21 is to think about innovations in the financial  
10:06 22 marketplace and to think about ways in which  
10:06 23 our regulatory paradigms that we rely on  
10:06 24 currently may not be a great fit.

10:06 25 Q. Professor, how would you describe

10:06 1 your area of expertise?

10:06 2 A. I would describe my area of  
10:06 3 expertise as market microstructure and  
10:06 4 innovation.

10:06 5 MS. STEWART: Can we go off the  
10:06 6 record, please.

10:07 7 A. I would also add --

10:07 8 MS. ZORNBERG: Wait, wait, wait,  
10:07 9 hold on.

10:07 10 Are we off or are we on?

10:07 11 MS. STEWART: Can we go off,  
10:07 12 please.

10:07 13 MS. ZORNBERG: Was there  
10:07 14 something that you needed to finish to  
10:07 15 answer the last question?

10:07 16 A. Yes, I wanted to add financial  
10:07 17 markets -- financial markets and their  
10:07 18 regulation to my area of expertise as well.

10:07 19 MS. STEWART: Okay. Thank you.  
10:07 20 That's helpful.

10:07 21 Now can we go off the record.

10:07 22 MS. ZORNBERG: Yes.

10:07 23 THE VIDEOGRAPHER: The time is  
10:07 24 10:07 a.m. This concludes Media 1. Off  
10:07 25 the record.

10:25 1 (Recess taken from 10:07 a.m. to  
10:25 2 10:25 a.m.)

10:25 3 THE VIDEOGRAPHER: The time now  
10:25 4 is 10:25 a.m. This begins Media 2. On  
10:25 5 the record.

10:25 6 BY MS. STEWART:

10:25 7 Q. Professor Yadav, before we went  
10:25 8 off the record, we were talking about your  
10:25 9 area of expertise. Do you recall that?

10:25 10 A. I do, yes.

10:25 11 Q. Does your area of expertise  
10:25 12 include Fintech?

10:25 13 A. It does, yes.

10:25 14 Q. And just so the record is clear,  
10:25 15 what is Fintech?

10:25 16 A. There is no standard definition  
10:25 17 of Fintech. Broadly speaking, it refers to  
10:25 18 the use of digital technologies in the area of  
10:25 19 financial markets.

10:26 20 In my article, I define, it  
10:26 21 alongside my coauthor, as entailing the use of  
10:26 22 algorithms, big data, as well as including  
10:26 23 smaller, less traditional players in the  
10:26 24 financial marketplace.

10:26 25 Q. And what is your expertise with

10:26 1 respect to Fintech?

10:26 2 MS. ZORNBERG: Object to form.

10:26 3 A. So I have a great deal of  
10:26 4 expertise in relation to the role of new  
10:26 5 technologies that are entering the financial  
10:26 6 marketplace.

10:26 7 And that has come from my  
10:26 8 personal professional experience that grew out  
10:26 9 of my time in legal practice that examined  
10:26 10 innovations in financial market design, at  
10:26 11 that time focusing on financial markets'  
10:26 12 contracts, financial markets' engineering,  
10:27 13 looking, for example, at derivatives  
10:27 14 contracts, at innovations in banking, and in  
10:27 15 payment technologies.

10:27 16 And working through my research  
10:27 17 in relation to the expertise that I have today  
10:27 18 in relation to various aspects of Fintech,  
10:27 19 including cryptocurrencies, cryptocurrency  
10:27 20 exchanges, looking at also various types of  
10:27 21 online advising in relation to financial  
10:27 22 products, investment advice, thinking broadly  
10:27 23 in relation to blockchains, looking at the  
10:27 24 aspect of financial markets products that are  
10:27 25 entering the marketplace such as online

10:27 1 lending that are important in the market  
10:27 2 today.

10:27 3 So that is that is, in a  
10:27 4 nutshell, some of the expertise that is  
10:27 5 encapsulated in the word "Fintech."

10:27 6 Q. You mentioned in your last answer  
10:28 7 cryptocurrency exchanges. Do you consider  
10:28 8 yourself an expert with respect to the  
10:28 9 functioning of cryptocurrency exchanges?

10:28 10 A. I do consider myself to be  
10:28 11 knowledgeable and expert in the area of  
10:28 12 cryptocurrency exchanges.

10:28 13 Q. And can you expand on how you're  
10:28 14 knowledgeable and expert in that area?

10:28 15 A. Sure. The expertise that I have  
10:28 16 in the area of cryptocurrency exchanges has  
10:28 17 developed out of a career that has focused  
10:28 18 intensively on market structure, market  
10:28 19 structure platforms, platform design,  
10:28 20 clearing, and settlement.

10:28 21 I began this expertise in my a  
10:28 22 career at Clifford Chance where I specialized  
10:28 23 as a lawyer that worked in market structure,  
10:28 24 in exchange design, in clearing, settlement,  
10:29 25 and risk management.



10:29 1 At that time, I worked heavily in  
10:29 2 relation to advising various aspect -- on  
10:29 3 various aspects of exchange design, clearing,  
10:29 4 and settlement and risk management.

10:29 5 In addition, as part of this  
10:29 6 overall expertise into market structure and  
10:29 7 platforms, I worked as a key person, a key --  
10:29 8 one of the two key lawyers that advised the  
10:29 9 European payments council.

10:29 10 That was a council that was a,  
10:29 11 sort of, Pan -- Pan-European effort to create  
10:29 12 a harmonized payments environment for the  
10:29 13 European economic area and Switzerland.

10:29 14 In that capacity, I was one of  
10:29 15 the key drafters of the rules that undergirded  
10:29 16 various payment schemes that included various  
10:29 17 innovative forms of payments.

10:29 18 And I worked as a key resource  
10:29 19 person that provided the rulemaking for those  
10:29 20 schemes, as well as engaged heavily with  
10:29 21 respect to the technical and operational  
10:30 22 standards that were driving those payments  
10:30 23 schemes.

10:30 24 Further to that work, I have  
10:30 25 worked at the World Bank on various aspects of

10:30 1 cross-border finance. That is important in  
10:30 2 the area of cryptocurrency exchanges as well.

10:30 3 I have worked in -- in various  
10:30 4 aspects of looking at firm design, looking at  
10:30 5 insolvency aspects, looking at the  
10:30 6 cross-border flow of transactions and data,  
10:30 7 also as part of my World Bank work into the  
10:30 8 study and implementation of international  
10:30 9 cross-border standards.

10:30 10 Following my time in research, I  
10:30 11 have worked extremely intensively looking at  
10:30 12 aspects of exchanges, clearing and settlement,  
10:30 13 looking at innovations in exchange technology,  
10:30 14 as I discussed with you as part of my earlier  
10:30 15 answer, looking at high-frequency trading  
10:30 16 platforms, for example, looking at dark pools  
10:30 17 as I noted before.

10:30 18 And so the work in  
10:31 19 cryptocurrencies that I am doing today is very  
10:31 20 much a natural extension of that expertise and  
10:31 21 knowledge and research and background that  
10:31 22 have developed throughout my career in legal  
10:31 23 practice, in policy, as well as today as part  
10:31 24 of my research.

10:31 25 In addition, I should mention

10:31 1 that I am constantly in conversation with  
10:31 2 policymakers, with thinkers, with other  
10:31 3 academics, in relation to various aspects of  
10:31 4 exchange design, thinking about aspects of  
10:31 5 market innovation, and certainly building --  
10:31 6 building a platform, a foundation for  
10:31 7 developing expertise in relation to  
10:31 8 cryptocurrencies and cryptocurrency exchanges.

10:31 9 Q. Which policymakers are you  
10:31 10 constantly in conversations with with respect  
10:31 11 to exchange design?

10:31 12 A. So I have had conversations  
10:31 13 certainly as part of my work with the CFTC. I  
10:32 14 was a member -- I've been a member since 2018  
10:32 15 of the technology advisory committee. That  
10:32 16 committee is currently, I believe it's waiting  
10:32 17 for a commission sponsorship at present, so  
10:32 18 it's not presently active.

10:32 19 But that was a committee in which  
10:32 20 the conversations on exchange design, platform  
10:32 21 design, market design, clearing, and  
10:32 22 settlement were ongoing really on a very, very  
10:32 23 regular basis.

10:32 24 In addition, I have also had  
10:32 25 conversations with the SEC in relation to

10:32 1 aspects of treasury market structure and  
10:32 2 platforms.

10:32 3 I have had conversations with  
10:32 4 respect to European policymakers, the EU, the  
10:32 5 EU commission. I have spoken to them about  
10:32 6 aspects of treasury market platforms and  
10:32 7 treasury market risks.

10:32 8 And so, you know, this is very  
10:32 9 much a part of my work to engage in  
10:32 10 conversations with policymakers, with leading  
10:33 11 thinkers in order to be able to forward my  
10:33 12 ideas for reform.

10:33 13 Q. Who at the SEC have you had  
10:33 14 conversations with with respect to treasury  
10:33 15 market structure and platform?

10:33 16 A. I had a conversation with Gary  
10:33 17 Gensler's office, with his chief of staff, I  
10:33 18 believe.

10:33 19 Q. And when was this conversation?

10:33 20 A. This conversation was, I would  
10:33 21 say, just prior to Thanksgiving, if I recall  
10:33 22 correctly.

10:33 23 Q. Was it a phone conversation?

10:33 24 MS. ZORNBERG: Excuse me. Can  
10:33 25 you repeat that. I didn't hear it.

10:33 1 Q. Was is it a phone conversation?

10:33 2 A. It was a conversation over Zoom,  
10:34 3 I think. It was a conversation on Zoom.

10:34 4 Q. Okay.

10:34 5 A. Or WebEx or one of them, yeah.

10:34 6 Q. Before your retention as an  
10:34 7 expert in this matter, were you aware that XRP  
10:34 8 was traded on cryptocurrency exchanges?

10:34 9 A. I was generally aware. I was  
10:34 10 generally aware, I think.

10:34 11 Q. Now, professor, I want to go  
10:34 12 through your report. So if you can get that  
10:34 13 binder that has Exhibit YY-1 back in front of  
10:34 14 you, please.

10:35 15 Do you have your report in front  
10:35 16 of you?

10:35 17 A. I do, yes.

10:35 18 Q. Okay. Taking a look at paragraph  
10:35 19 2, sort of, the middle of the paragraph where  
10:35 20 you speak about your research, including  
10:35 21 Fintech and cryptocurrencies.

10:35 22 Do you see that?

10:35 23 A. Yes, I do.

10:35 24 Q. I think you've spoken a little  
10:35 25 bit about this in general, but I just want to

10:35 1 make sure we have it in the record.

10:35 2 Can you explain what research  
10:35 3 you've conducted with respect to  
10:35 4 cryptocurrency?

10:35 5 A. Yes.

10:35 6 MS. ZORNBERG: Object to form.

10:35 7 A. Could you be a little bit more  
10:35 8 specific about what you're looking for here?

10:35 9 Q. Sure. I would like to understand  
10:36 10 better the research that you're referring to  
10:36 11 in this paragraph as it relates to  
10:36 12 cryptocurrencies.

10:36 13 A. Sure.

10:36 14 MS. ZORNBERG: Objection. I'm  
10:36 15 sorry. Can you -- are you talking about  
10:36 16 a specific part of the paragraph?

10:36 17 MS. STEWART: Yeah. We're -- I'm  
10:36 18 asking, Lisa, about this sentence that  
10:36 19 begins with "This research spans equity  
10:36 20 markets," and ends with, "and Fintech  
10:36 21 including cryptocurrencies."

10:36 22 So I just want to understand the  
10:36 23 portion that refers to cryptocurrencies  
10:36 24 and the research that the professor has  
10:36 25 conducted with respect to

10:36 1 cryptocurrencies. I'm not sure what's  
10:36 2 unclear about that.

10:36 3 MS. ZORNBERG: Thank you.

10:36 4 A. The research that I'm currently  
10:36 5 undertaking on cryptocurrencies spans at  
10:36 6 present, I believe, four projects. So I will  
10:36 7 speak on each of them in turn.

10:36 8 So with respect to cryptocurrency  
10:36 9 exchanges, I'm currently working on an article  
10:36 10 that examines the ability of cryptocurrency  
10:37 11 exchanges to perform the role of  
10:37 12 self-regulatory organizations as traditional  
10:37 13 exchanges currently do under the Securities  
10:37 14 and Exchange Act.

10:37 15 So what my article seeks to do is  
10:37 16 examine the pros and the cons, the rationales,  
10:37 17 the theoretical payoffs that might come from  
10:37 18 cryptocurrency exchanges, exercising private  
10:37 19 oversight and discipline of the marketplace as  
10:37 20 traditional exchanges currently do.

10:37 21 What this paper seeks to argue is  
10:37 22 that cryptocurrency exchanges on the positive  
10:37 23 side can bring a great deal of expertise, of  
10:37 24 industry experience, and also disciplinary  
10:37 25 power arising from their very important,

10:37 1 indeed, central role within the cryptocurrency  
10:37 2 ecosystem.

10:37 3           However, the paper also points to  
10:38 4 potential drawbacks of cryptocurrency  
10:38 5 exchanges performing this oversight role. For  
10:38 6 example, it details various potential for  
10:38 7 conflicts of interest that may arise where  
10:38 8 cryptocurrency exchanges that provide  
10:38 9 oftentimes a variety of products to their  
10:38 10 users are exercising discipline over those  
10:38 11 that they are currently in business with in a  
10:38 12 very deep way.

10:38 13           However, these are not concerns  
10:38 14 that are particularly new to the  
10:38 15 cryptocurrency marketplace. They have been  
10:38 16 dealt with.

10:38 17           Also, in the context of  
10:38 18 traditional exchanges like the New York Stock  
10:38 19 Exchange and NASDAQ, there is extensive  
10:38 20 literature, for example, on the conflicts of  
10:38 21 interest that may apply in the case of the  
10:38 22 NASDAQ and the New York Stock Exchange  
10:38 23 exercising discipline over the folks that they  
10:38 24 supervise.

10:38 25           And so what this paper goes on to



10:38 1 do is to propose and to think about potential  
10:39 2 ways in which to make cryptocurrency exchanges  
10:39 3 positive actors that can exercise discipline  
10:39 4 and oversight and bring safety and integrity  
10:39 5 to the marketplace as a whole, and provides a  
10:39 6 series of ideas that can -- that might work to  
10:39 7 enhance that going forward. So that is one  
10:39 8 paper here.

10:39 9 In addition, I would -- I'm  
10:39 10 looking at the application of international  
10:39 11 standards as promulgated by the committee on  
10:39 12 payment and settlement systems, the Basel  
10:39 13 committee, looking at IOSCO, and seeing how  
10:39 14 well these standards might apply in the  
10:39 15 context of clearing and settlement exchanges,  
10:39 16 as well as also the clearing and settlement  
10:39 17 mechanisms that these exchanges deployed.

10:39 18 So in particular, what that  
10:39 19 research will seek to examine is the ability  
10:39 20 of clearing and settlement standards, for  
10:39 21 example, to apply in the context of  
10:40 22 cryptocurrency exchanges that internalize much  
10:40 23 of the role of clearing and settlement within  
10:40 24 their firm.

10:40 25 As you know in the traditional

10:40 1 context -- and this is detailed in this report  
10:40 2 as well -- traditional exchanges tend to rely  
10:40 3 on clearinghouses to perform -- and custodians  
10:40 4 to perform a variety of risk management  
10:40 5 functions.

10:40 6 In the context of clearing --  
10:40 7 central clearing in the context of  
10:40 8 cryptocurrency exchanges on the other hand,  
10:40 9 many of these functions are internalized  
10:40 10 generally by the cryptocurrency exchanges  
10:40 11 themselves.

10:40 12 And what this paper and research  
10:40 13 seeks to look at is whether the international  
10:40 14 standards that we have existing in place for  
10:40 15 cryptocurrency risk management for -- sorry.  
10:40 16 I take that back.

10:40 17 The existing standards we have in  
10:40 18 place for traditional service providers can  
10:40 19 apply with equal force to cryptocurrency  
10:40 20 clearing and settlement mechanisms. And I  
10:40 21 argue, as I will argue in this paper, there  
10:40 22 are some issues to think about that are  
10:40 23 different and interesting.

10:41 24 In particular, the role of  
10:41 25 storage and private keys is something to think

10:41 1 about that is new to the cryptocurrency  
10:41 2 marketplace. How to safeguard those keys, how  
10:41 3 to think about those keys, that's something  
10:41 4 that is particularly important.

10:41 5 Data management, risk management,  
10:41 6 collateral, cryptocurrency exchanges, and how  
10:41 7 they should calibrate their levels of capital,  
10:41 8 for example, to safeguard and maintain  
10:41 9 credential safety for the marketplace as a  
10:41 10 whole. So that is one project that is also  
10:41 11 underway.

10:41 12 In addition, I have a couple of  
10:41 13 projects that are looking at CBDCs. That's a  
10:41 14 slightly different take here. I am looking at  
10:41 15 Central Bank digital currencies, and  
10:41 16 specifically on the role of privacy in the  
10:41 17 context of Central Bank digital currencies.

10:41 18 That will be a coauthored  
10:41 19 project, and that will examine how  
10:41 20 programmable Central Bank digital currencies  
10:41 21 operate within a privacy framework that we  
10:41 22 have today, and how to potentially enhance the  
10:41 23 privacy safeguards that we will have  
10:42 24 potentially in the context of a CBDC.

10:42 25 Finally, a project that I am --

10:42 1 that I am planning to do that I am currently  
10:42 2 researching the material for looks at how to  
10:42 3 think about code in the context of a Central  
10:42 4 Bank digital currency.

10:42 5 In particular, when we do have a  
10:42 6 Central Bank digital currency that is  
10:42 7 promulgated by our government, how should the  
10:42 8 code underlying that currency be regulated?  
10:42 9 What is the difference between a Central Bank  
10:42 10 digital currency and the digital mechanisms  
10:42 11 for payments that we deploy today?

10:42 12 If our government is providing a  
10:42 13 programmable digital currency as might be  
10:42 14 proposed, in that context, how should the  
10:42 15 underlying code for that currency be thought  
10:42 16 about?

10:42 17 What kind of safeguards should be  
10:42 18 put in? What kind of potential fragilities  
10:42 19 exist within a market space? For example, in  
10:43 20 relation to cyber risks where much of our  
10:43 21 monetary system is subject to an underlying  
10:43 22 code.

10:43 23 So that gives you some flavor of  
10:43 24 the current projects that I'm doing. And just  
10:43 25 last week I was speaking to federal judges

10:43 1 from the fifth circuit bankruptcy -- from the  
10:43 2 fifth circuit.

10:43 3 And I was discussing a potential  
10:43 4 project in relation to the insolvency of  
10:43 5 cryptocurrency exchanges and what kind of  
10:43 6 procedures that might have to be put in place  
10:43 7 to deal with the resolution of an exchange  
10:43 8 where assets like cold storage of keys, for  
10:43 9 example, may be very difficult to locate, take  
10:43 10 possession of, and distribute within the  
10:43 11 communities that judges are used to dealing  
10:43 12 with. So, you know, that hopefully gives you  
10:43 13 some idea of the current research that is  
10:43 14 underway.

10:43 15 BY MS. STEWART:

10:43 16 Q. Thank you. That's helpful. Was  
10:43 17 any of this current research that you spoke  
10:43 18 about in your last answer underway at the time  
10:44 19 you were retained as an expert in this case?

10:44 20 A. I had been working on a paper in  
10:44 21 relation to the cryptocurrencies as SROs work.  
10:44 22 In addition, I had had several conversations  
10:44 23 as well as planned out my projects with  
10:44 24 respect to Central Bank digital currencies.

10:44 25 Q. And that paper that you referred

10:44 1 to with respect to cryptocurrencies -- crypto  
10:44 2 exchanges as SROs, do you know when that paper  
10:44 3 will be published?

10:44 4 A. As an academic, I can't give you  
10:44 5 a clear answer on that. I am working on it at  
10:44 6 present.

10:44 7 Q. So in that same paragraph in your  
10:45 8 report, paragraph 2, toward the end, you  
10:45 9 state:

10:45 10 "My work also engages with  
10:45 11 international developments in market  
10:45 12 design to explore how foreign  
10:45 13 jurisdictions organize their trading  
10:45 14 markets, oversee innovation," et cetera.

10:45 15 Do you see that sentence?

10:45 16 A. I do, yes.

10:45 17 Q. What work are you referring to in  
10:45 18 that sentence?

10:45 19 A. So, for example, I am -- I have  
10:45 20 been a financial regulatory lawyer throughout  
10:45 21 my career, essentially, in international  
10:45 22 financial market standards.

10:45 23 That began at Clifford Chance  
10:45 24 where I engaged very, very frequently with  
10:45 25 international standards, for example, in

10:45 1 relation to banking, regulation in the Basel  
10:45 2 standards, as well as numerous other  
10:45 3 standards, for example, in relation to  
10:45 4 clearing and settlement systems.

10:46 5 I was advising heavily at that  
10:46 6 time in relation to these standards. And this  
10:46 7 work obviously became much more directly  
10:46 8 involved in financial standard setting from  
10:46 9 the policy side when I joined the World Bank.

10:46 10 At the World Bank, much of my  
10:46 11 work at the bank was focused on the  
10:46 12 implementation of the Financial Stability  
10:46 13 Board's international standards, notably in  
10:46 14 relation to insolvency and creditor rights.

10:46 15 But as detailed in the CV, the  
10:46 16 engagement at the bank also included thinking  
10:46 17 about and discussing and engaging with the  
10:46 18 other standards that the financial stability  
10:46 19 board has promulgated.

10:46 20 So this was really the work that  
10:46 21 I have grown up in. This is the work that I  
10:46 22 have deep expertise in, in relation to the --  
10:46 23 in relation to the crafting and implementation  
10:46 24 and operationalizing of global international  
10:46 25 standards within domestic spaces.

10:47 1 In terms of my research work,  
10:47 2 this work has been reflected in a number of  
10:47 3 papers as well as in my policy work. So, for  
10:47 4 example, in the extraterritorial regulation of  
10:47 5 clearinghouses, I explore the international  
10:47 6 regulation of clearinghouses, how divergent  
10:47 7 standards post Dodd-Frank have been dealt with  
10:47 8 in the context of clearinghouses.

10:47 9 I have a paper in the Vanderbilt  
10:47 10 Journal of Transnational -- in the Vanderbilt  
10:47 11 Transnational Law Journal that speaks to the  
10:47 12 international regulation of Fintech in the  
10:47 13 context of our global financial stability  
10:47 14 board standards.

10:47 15 In addition, I have engaged with  
10:47 16 policy work that -- that is directly concerned  
10:47 17 with the implementation of the G20's  
10:47 18 Pittsburgh agenda into financial market  
10:47 19 systems, and that was with the Atlanta council  
10:47 20 where I focused on chapters in relation to  
10:48 21 derivatives and clearinghouses.

10:48 22 And in addition, obviously, I  
10:48 23 have worked with the -- I have been an  
10:48 24 honorary advisor to the Indian Financial  
10:48 25 Services Law Reform Commission, where I was



10:48 1 advising on the implementation of  
10:48 2 international financial regulatory standards  
10:48 3 into the domestic framework for the Indian  
10:48 4 financial market and for their proposed  
10:48 5 reforms that were underway at that time.

10:48 6 In addition, this international  
10:48 7 standard setting work that you referenced is  
10:48 8 something that has come up also in the context  
10:48 9 of my policy work with the CFTC.

10:48 10 There in meetings with the CFTC,  
10:48 11 I have discussed aspects of international  
10:48 12 financial standards in the context of  
10:48 13 discussions that were underway at the  
10:48 14 technology advisory committee meetings that  
10:48 15 were ongoing at that time.

10:48 16 Q. Turning now to paragraph 3 of  
10:48 17 your report, and I want to look at the last  
10:49 18 sentence of that paragraph where you say, sort  
10:49 19 of, starting in the middle of the sentence:

10:49 20 "My research has focused on how  
10:49 21 effectively international standards can  
10:49 22 apply in this area and the implications  
10:49 23 of divergent jurisdictional approaches  
10:49 24 to the supervision of highly mobile and  
10:49 25 geographically dispersed cross-border

10:49 1 technologies (e.g., cryptocurrencies)."

10:49 2 Do you see that?

10:49 3 A. I do, yes.

10:49 4 Q. Am I understanding correctly  
10:49 5 that, based on the example you provide in that  
10:49 6 sentence, that you believe that  
10:49 7 cryptocurrencies are highly mobile and  
10:49 8 geographically dispersed cross-border  
10:49 9 technologies?

10:49 10 A. Cryptocurrencies can be mobile  
10:49 11 and geographically dispersed technologies.

10:50 12 Q. And as you use it in your report,  
10:50 13 what does the term "highly mobile" mean?

10:50 14 A. Cryptocurrencies can be traded on  
10:50 15 a cross-border basis. They can be traded by  
10:50 16 people who are moving between jurisdictions.  
10:50 17 They can be traded on various blockchains that  
10:50 18 are global in nature and whose nodes are  
10:50 19 global in nature.

10:50 20 Q. And as you use it in your report,  
10:50 21 what does "geographically dispersed" mean?

10:50 22 A. "Geographically dispersed" means  
10:50 23 not confined necessarily to one country.

10:50 24 Q. And as you use it in your report,  
10:50 25 what does "cross-border" mean?

10:50 1 A. Again, not confined to one  
10:51 2 country but going between different countries.

10:51 3 Q. Turning to paragraph 4 of your  
10:51 4 report, in the middle of the paragraph, you  
10:51 5 say:

10:51 6 "My focus lies in determining  
10:51 7 whether unique aspects about the design  
10:51 8 and structure of cryptocurrency  
10:51 9 exchanges will impact their capacity to  
10:51 10 deliver robust oversight of the  
10:51 11 marketplace and users."

10:51 12 Do you see that?

10:51 13 A. I do, yes.

10:51 14 Q. What "unique aspect" are you  
10:51 15 referring to in that sentence?

10:51 16 A. So, for example, one unique  
10:51 17 aspect of cryptocurrency design, exchange  
10:51 18 design, is the fact that they tend to engage  
10:52 19 in their own clearing and settlement and  
10:52 20 custody of the assets being traded.

10:52 21 That is different and divergent  
10:52 22 from current practices that traditional  
10:52 23 exchanges deploy, and that has been referenced  
10:52 24 in my report as well.

10:52 25 So current traditional exchanges

10:52 1 tend to rely on specialized clearinghouses,  
10:52 2 for example, like Depository Trust and  
10:52 3 Clearing Corporation or CME. The Chicago CME  
10:52 4 clearing, Chicago Mercantile Exchange  
10:52 5 Clearing, ICE clearing as well, they rely on  
10:52 6 specialist clearinghouses to provide clearing  
10:52 7 services as well as custody services for  
10:52 8 assets.

10:52 9 Now, looking at cryptocurrency  
10:52 10 exchanges by contrast, they tend to clear  
10:52 11 in-house, meaning that they tend to -- they  
10:52 12 tend to modify the books and records of their  
10:53 13 exchange itself and modify user records to  
10:53 14 reflect the trading and the gains of different  
10:53 15 users on the exchange using an internal -- an  
10:53 16 internal system of clearing -- pardon me, of  
10:53 17 clearing in this regard.

10:53 18 That has several implications for  
10:53 19 the ability of cryptocurrency exchanges to  
10:53 20 deliver private oversight. Most notably, in  
10:53 21 my paper, I argue that it can be a real  
10:53 22 incentive for cryptocurrency exchanges to do a  
10:53 23 good job in delivering cryptocurrency exchange  
10:53 24 oversight.

10:53 25 And the reason for that is that

10:53 1 cryptocurrency exchanges are more centralized  
10:53 2 than traditional marketplaces are, because  
10:53 3 they are centralizing and internalizing this  
10:53 4 clearing and settlement function.

10:53 5               So to just give you one example  
10:53 6 that is a unique aspect of cryptocurrency  
10:53 7 exchange design that is different from  
10:53 8 traditional exchanges.

10:53 9               Nevertheless, as I've detailed  
10:53 10 throughout this paper, opinion, as well as  
10:54 11 discussed in my research paper, cryptocurrency  
10:54 12 exchanges also harness a lot of similarities  
10:54 13 with traditional exchanges like the New York  
10:54 14 Stock Exchange, NASDAQ, CME, and others,  
10:54 15 meaning that we really have to think deeply  
10:54 16 about distinguishing features of  
10:54 17 cryptocurrency exchanges to think about  
10:54 18 potential ways in which they may be subject to  
10:54 19 certain risks that are different from the  
10:54 20 traditional risks that are -- that they're  
10:54 21 subject to common to other types of exchanges  
10:54 22 and marketplaces.

10:54 23               Q.     Okay. Turning to paragraph 5 of  
10:54 24 your report, and looking at the last sentence  
10:54 25 where you say:

10:54 1 "For example, in discussing  
10:54 2 cryptocurrencies, I seek to provide  
10:54 3 students with an overview of the  
10:54 4 computational principles that are  
10:55 5 utilized in the creation of  
10:55 6 cryptocurrencies like Bitcoin (e.g., to  
10:55 7 explain the need for mining within its  
10:55 8 decentralized blockchain)."

10:55 9 Do you see that?

10:55 10 A. I do, yes.

10:55 11 Q. And when you refer in this  
10:55 12 sentence to "decentralized blockchain," what  
10:55 13 do you mean by that?

10:55 14 A. I refer to traditional  
10:55 15 blockchains in the context of Bitcoin and  
10:55 16 Ethereum in particular. Those are the ones  
10:55 17 that I focus on in my course.

10:55 18 Q. And what does the term  
10:55 19 "decentralization" mean as applied to  
10:55 20 blockchains?

10:55 21 A. So just in a general level, how I  
10:55 22 teach it really references the use of multiple  
10:55 23 different nodes within -- multiple different  
10:55 24 nodes within the blockchain that don't  
10:55 25 necessarily know each other.

10:56 1 Q. Are you offering an opinion in  
10:56 2 this case about whether or not the bitcoin  
10:56 3 blockchain is decentralized?

10:56 4 A. I am not.

10:56 5 Q. Do you have an opinion on whether  
10:56 6 or not the bitcoin blockchain is  
10:56 7 decentralized?

10:56 8 A. I do not.

10:56 9 Q. Are you offering an opinion about  
10:56 10 whether or not the XRP ledger is  
10:56 11 decentralized?

10:56 12 A. I am not.

10:56 13 Q. Do you have an opinion about  
10:56 14 whether or not the XRP ledger is  
10:56 15 decentralized?

10:56 16 A. I do not.

10:56 17 Q. Turning to paragraph 9 of your  
10:57 18 report, you say:

10:57 19 "For example, in "The Broken Bond  
10:57 20 Market" (with Professor Jonathan  
10:57 21 Brogaard), I studied over-the-counter  
10:57 22 bond market microstructure to develop an  
10:57 23 understanding of why bond markets appear  
10:57 24 to lack attributes like liquidity and  
10:57 25 transparency."

10:57 1 Do you see that?

10:57 2 A. I do, yes.

10:57 3 Q. What is "liquidity" as you use it  
10:57 4 in your report?

10:57 5 A. As I use it in my report or as I  
10:57 6 use it in this paper?

10:57 7 Q. Well, as you use it in your  
10:57 8 reference to this paper in your report.

10:57 9 A. Ah, okay. The liquidity that I'm  
10:57 10 referencing in the broken bond market refers  
10:57 11 to the ability of bonds to be able to trade in  
10:57 12 a smooth manner where the trading is cheap,  
10:58 13 where the trading is -- where there's  
10:58 14 plentiful ability of market makers to enter  
10:58 15 and exit and provide opportunities for  
10:58 16 trading, and for the trading not to impact the  
10:58 17 prices when investors potentially undertake a  
10:58 18 large order.

10:58 19 So the liquidity that is detailed  
10:58 20 and discussed in this paper is referencing the  
10:58 21 inability of the bond market to create a  
10:58 22 marketplace where investors can enter and exit  
10:58 23 the bond market with ease, do so cheaply, and  
10:58 24 do so in a way where their actions do not  
10:58 25 necessarily impact prices in the market.



10:58 1 I should add that one of the  
10:58 2 aspects that is important here is also the  
10:58 3 ability of prices to be informative. So that  
10:58 4 is a corollary of the liquidity that is  
10:58 5 discussed in this paper.

10:59 6 Q. When you say "that is a corollary  
10:59 7 of the liquidity discussed in this paper," can  
10:59 8 you explain to me what you mean by that?

10:59 9 A. Certainly. What that means is  
10:59 10 that the liquidity would encourage a broad  
10:59 11 swath of traders to enter the market, would  
10:59 12 afford informed, uniformed, other traders to  
10:59 13 be part of the market. This is discussed as  
10:59 14 part of my work in this opinion as well.

10:59 15 And it offers a way for  
10:59 16 that -- the information that is contained in  
10:59 17 that trading to then be reflected in the  
10:59 18 prices at which the assets are being traded.

10:59 19 Q. And as you use it in your report  
10:59 20 with respect to the paper that you're  
10:59 21 referring to in paragraph 9, what does the  
10:59 22 term "transparency" mean?

10:59 23 A. Part of the transparency that is  
10:59 24 discussed here is in relation to pretrade  
11:00 25 transparency in the bond market.

11:00 1 One of the unique features of our  
11:00 2 bond market today, which is surprising, is  
11:00 3 that it lacks, for the most part, pretrade  
11:00 4 transparency, which means that the  
11:00 5 infrastructure for trading in the market does  
11:00 6 not advertise systematically the prices at  
11:00 7 which the bonds are being offered by the  
11:00 8 different dealers.

11:00 9 Dealers have a lot of discretion  
11:00 10 in the prices that they quote in the  
11:00 11 over-the-counter market for bond trading, and  
11:00 12 what that means, essentially, is that there is  
11:00 13 a lack of pretrade transparency in the bond  
11:00 14 market that implies that investors entering  
11:00 15 the market do not always know the prices at  
11:00 16 which they are likely to execute the  
11:00 17 transactions they are looking to get into.

11:00 18 Q. Are liquidity and transparency  
11:01 19 important in cryptocurrency markets?

11:01 20 MS. ZORNBERG: Object to form.

11:01 21 A. That is a broad question.  
11:01 22 Liquidity and transparency are aspects that  
11:01 23 are arguably quite contentious, even in the  
11:01 24 traditional market.

11:01 25 So in the context of the

11:01 1 traditional market, for example, transparency  
11:01 2 is something that is not always provided by  
11:01 3 the market, sometimes deliberately not  
11:01 4 provided by the market.

11:01 5 So, for example, when one looks  
11:01 6 at transparency, there is a lack of  
11:01 7 transparency even in the equity market, which  
11:01 8 is supposedly one of the most transparent  
11:01 9 markets in our system today.

11:01 10 If one takes a look at dark  
11:01 11 pools, for example, which are a part of our  
11:01 12 equity market structure trading system, there  
11:01 13 is a lack of pretrade transparency even on  
11:01 14 those dark pools.

11:01 15 However, policy considers some of  
11:02 16 this lack of transparency to be desirable in  
11:02 17 order to afford investors a choice about how  
11:02 18 they wish to execute their trades.

11:02 19 In addition, as we just  
11:02 20 discussed, the treasury market lacks  
11:02 21 transparency on multiple different measures,  
11:02 22 and oftentimes that is by design, in order to  
11:02 23 prevent potential systemic damage arising from  
11:02 24 the trading of treasury.

11:02 25 So in asking about cryptocurrency

11:02 1 market, it's a very, very difficult question.  
11:02 2 There is a lack of empirical study about the  
11:02 3 trading structure in this market that could  
11:02 4 give credible responses about some of the  
11:02 5 aspects of transparency and liquidity that you  
11:02 6 were discussing.

11:03 7 Q. As part of your work for the CFTC  
11:03 8 technology advisory committee that you  
11:03 9 referenced today, did you participate in any  
11:03 10 discussions regarding Ripple or XRP?

11:03 11 A. Not that I can recall, no.

11:03 12 Q. As part of your work on that  
11:03 13 committee, did you conduct any research or  
11:03 14 analysis of Ripple or XRP?

11:03 15 A. Not that I can recall.

11:03 16 Q. Looking at paragraph 18 of your  
11:03 17 report, you say: "I am being compensated at  
11:03 18 my ordinary hourly rate of \$800 per hour."

11:03 19 Do you see that?

11:03 20 A. I do, yes.

11:03 21 Q. What do you mean by "ordinary  
11:03 22 hourly rate"?

11:03 23 A. Just the normal rate.

11:03 24 Q. Okay. Have you charged that rate  
11:04 25 for other engagements?

11:04 1 A. I have not, no.

11:04 2 Q. So what makes it ordinary?

11:04 3 MS. ZORNBERG: Objection. Object  
11:04 4 to form.

11:04 5 A. It's just that -- it's just the  
11:04 6 normal rate for me.

11:04 7 Q. Have you charged a different rate  
11:04 8 for other engagements?

11:04 9 A. I have not had other engagements.

11:04 10 Q. Turning now to paragraph 19 of  
11:04 11 your report, you say:

11:04 12 "I have been asked by counsel for  
11:04 13 Ripple to offer an opinion on how offers  
11:04 14 to buy and sell, and trades of,  
11:04 15 cryptocurrencies are made on  
11:04 16 cryptocurrency exchanges, the location  
11:04 17 of those offers and trades, and the  
11:04 18 location of various cryptocurrency  
11:04 19 exchanges."

11:04 20 Do you see that?

11:04 21 A. I do, yes.

11:05 22 Q. Is this an accurate description  
11:05 23 of the scope of your assignment in this  
11:05 24 matter?

11:05 25 A. Yes, it is.

11:05 1 Q. As you use the terms in this  
11:05 2 sentence and in your report, what are "offers  
11:05 3 to buy and sell cryptocurrencies made on  
11:05 4 cryptocurrency exchanges"?

11:05 5 A. I'm not sure -- I don't  
11:05 6 understand the question.

11:05 7 Q. Can you explain to me what you  
11:05 8 mean when you say "offers to buy and sell  
11:05 9 cryptocurrencies on cryptocurrency exchanges"?

11:05 10 A. What I generally mean by that are  
11:05 11 offers that are submitted into cryptocurrency  
11:05 12 exchanges in order to buy and sell  
11:06 13 cryptocurrencies on that exchange that are  
11:06 14 then matched by the exchange and made final on  
11:06 15 those exchanges.

11:06 16 Q. And as you use it in this  
11:06 17 sentence we just read in paragraph 19 and  
11:06 18 throughout your report, what are "trades of  
11:06 19 cryptocurrencies made on cryptocurrency  
11:06 20 exchanges"?

11:06 21 A. "Trades" references transactions  
11:06 22 that are consummated. In other words, once an  
11:06 23 offer to trade, meaning an offer to buy or  
11:06 24 sell a cryptocurrency, is matched by the  
11:06 25 exchange in accordance with its rules and

11:06 1 processes, that then becomes a consummated  
11:06 2 transaction, in other words, a trade.

11:06 3 Q. As you use the term in your  
11:06 4 report, does "offer" refer to a trade order?

11:07 5 A. An "offer" refers to an offer to  
11:07 6 buy or sell a cryptocurrency.

11:07 7 Q. So as you use it in your report,  
11:07 8 an "offer" does not refer to a trade order?

11:07 9 A. I don't know what you mean by  
11:07 10 "trade order."

11:07 11 Q. You don't understand what the  
11:07 12 term "trade order" means generally?

11:07 13 MS. ZORNBERG: Objection.

11:07 14 You can answer.

11:07 15 A. An order to trade? Yes. "Trade  
11:07 16 order," that's not a term I'm -- that comes up  
11:07 17 very often.

11:07 18 Q. What is an order to trade?

11:07 19 A. Meaning an order to buy or sell a  
11:07 20 cryptocurrency on an exchange that is made in  
11:07 21 accordance with the exchange's specific rules  
11:07 22 and processes for submitting an order into  
11:07 23 that exchange.

11:07 24 Q. So as you just defined the term  
11:07 25 "order of trade," is that what you're

11:07 1 referring to when you use the word "offer" in  
11:08 2 your report?

11:08 3 A. That's really broad. The -- you  
11:08 4 know, I'd have to go through my whole report  
11:08 5 for various uses here. Certainly in the  
11:08 6 scope, the order that I'm referring is the  
11:08 7 order to buy and sell a cryptocurrency.

11:08 8 Q. As you use it in paragraph 19,  
11:08 9 would it be accurate to say that "the offer to  
11:08 10 buy and sell a cryptocurrency" refers to an  
11:08 11 order of trade to buy or sell a  
11:08 12 cryptocurrency?

11:08 13 A. Refers to an order to buy and  
11:08 14 sell a cryptocurrency on an exchange made in  
11:08 15 accordance with the rules and processes of  
11:08 16 that exchange.

11:08 17 Q. Is your opinion in this case  
11:08 18 limited to offers and trades of  
11:09 19 cryptocurrencies on cryptocurrency exchanges?

11:09 20 MS. ZORNBERG: Object to form.

11:09 21 You can answer.

11:09 22 A. Yes, it is.

11:09 23 Q. In your opinion, is it possible  
11:09 24 for an offer for a cryptocurrency on an  
11:09 25 exchange to occur at a different place than



11:09 1 the trade for that cryptocurrency?

11:09 2 A. Could you repeat the question,  
11:09 3 please.

11:09 4 Q. In your opinion, is it possible  
11:09 5 for an offer for a cryptocurrency on an  
11:09 6 exchange to occur at a different place than  
11:09 7 the trade for that cryptocurrency?

11:09 8 A. No. In my opinion, an offer that  
11:09 9 is made to trade a cryptocurrency, in other  
11:09 10 words, an offer that is made to buy or sell a  
11:09 11 cryptocurrency is made on that exchange in  
11:09 12 accordance with the rules and processes of  
11:09 13 that exchange.

11:09 14 It is then matched by that  
11:10 15 exchange in accordance with its rules and  
11:10 16 processes, and it becomes final on that  
11:10 17 exchange in accordance with its rules and  
11:10 18 processes.

11:10 19 Q. So would you agree that an offer  
11:10 20 for a cryptocurrency on an exchange is  
11:10 21 transmitted to the exchange from the place the  
11:10 22 person making the offer is located?

11:10 23 MS. ZORNBERG: Object to form.

11:10 24 A. No. The exchange receives the  
11:10 25 order in accordance with its own order

11:10 1 submission mechanisms. How that is  
11:10 2 transmitted is not particularly relevant or  
11:10 3 germane or always known to the exchange.

11:10 4 Q. Putting aside whether it's  
11:10 5 relevant or germane or known to the exchange,  
11:11 6 is it fair to say that an offer for  
11:11 7 cryptocurrency is transmitted to the exchange  
11:11 8 from the place that the person making that  
11:11 9 offer is located at the time he or she makes  
11:11 10 that offer?

11:11 11 MS. ZORNBERG: Object to form.

11:11 12 A. It's very broad. The offer to  
11:11 13 buy or sell a cryptocurrency is made in  
11:11 14 accordance with the exchange's own order  
11:11 15 submission system.

11:11 16 Q. So you can't answer my question  
11:11 17 about whether an offer is transmitted from the  
11:11 18 place of the person transmitting the offer is  
11:11 19 located?

11:11 20 A. The order takes on a form only  
11:11 21 under the rules and processes of the exchange  
11:11 22 itself. In other words, an order becomes an  
11:11 23 order only when it enters the submission  
11:11 24 system that the exchange deploys in order to  
11:11 25 vet incoming instructions, to take those

11:11 1 instructions, to make them into viable orders  
11:12 2 to buy and sell a cryptocurrency. That order  
11:12 3 only becomes an order in accordance with the  
11:12 4 rules and processes of the exchange itself.

11:12 5 Q. Looking at paragraph 20 of your  
11:12 6 report, you say:

11:12 7 "I also requested, reviewed, and  
11:12 8 considered additional materials,  
11:12 9 information, and documents."

11:12 10 Do you see that sentence?

11:12 11 A. I do, yeah.

11:12 12 Q. Is all of the material that you  
11:12 13 requested, reviewed, and considered reflected  
11:12 14 either in Exhibit B to your report or in the  
11:12 15 footnotes to your report?

11:12 16 A. Yes. Although, as you can see,  
11:13 17 I've also relied on my, sort of, general  
11:13 18 academic knowledge as well as my own  
11:13 19 professional experience and judgment.

11:13 20 Q. Who did you request materials  
11:13 21 from?

11:13 22 MS. ZORNBERG: Objection. Asked  
11:13 23 and answered.

11:13 24 You can answer again but without  
11:13 25 disclosing the substance of

11:13 1 communications with counsel.

11:13 2 A. I requested material from  
11:13 3 counsel.

11:13 4 Q. Anyone other than counsel?

11:13 5 A. No.

11:13 6 Q. Without getting into the  
11:13 7 specifics, did counsel supply any facts that  
11:13 8 you considered in forming your opinions?

11:13 9 A. No.

11:13 10 Q. Did counsel supply any data that  
11:13 11 you considered in forming your opinion?

11:14 12 MS. ZORNBERG: Object to form.

11:14 13 A. The only thing I received from  
11:14 14 counsel was in relation to the Table A  
11:14 15 exchanges and that's it.

11:14 16 Q. Did counsel supply any  
11:14 17 assumptions that you relied on in forming your  
11:14 18 opinions?

11:14 19 A. No, they did not.

11:14 20 Q. So I want to turn now to Exhibit  
11:14 21 B of your report.

11:14 22 MS. ZORNBERG: I don't know,  
11:14 23 Ms. Stewart, if -- we're coming up on  
11:14 24 another hour. Just at some point, I'd  
11:14 25 be interested in taking a five-minute

11:14 1 break.

11:14 2 MS. STEWART: Sure. Now is fine.

11:14 3 THE VIDEOGRAPHER: The time now  
11:14 4 is 11:14 a.m. This concludes Media 2.  
11:14 5 Off the record.

11:41 6 (Recess taken from 11:14 a.m. to  
11:41 7 11:40 a.m.)

11:41 8 THE VIDEOGRAPHER: The time now  
11:41 9 is 11:40 a.m. This begins Media 3. On  
11:41 10 the record.

11:41 11 EXAMINATION BY

11:41 12 MR. SYLVESTER:

11:41 13 Q. Professor, you testified earlier  
11:41 14 today that you were generally aware that XRP  
11:41 15 was traded on digital asset platforms prior to  
11:41 16 your retention as an expert witness in this  
11:41 17 case. Correct?

11:41 18 A. That's correct.

11:41 19 Q. Okay. Again, prior to your  
11:41 20 retention as an expert witness, what, if  
11:41 21 anything, was your understanding about any  
11:41 22 link between XRP's role in facilitating  
11:41 23 international payment transactions and its  
11:41 24 trading on digital asset platforms?

11:41 25 A. I didn't have any particular

11:41 1 knowledge in that regard.

11:41 2 Q. Did you know whether the trading  
11:41 3 and the facilitation of international payment  
11:41 4 transactions were linked in any way?

11:41 5 A. I'm sorry, could you repeat the  
11:41 6 question.

11:41 7 Q. Sure. Did you know whether XRP's  
11:41 8 trading on digit asset trading platforms and  
11:41 9 its use in facilitating international payment  
11:42 10 transactions were linked in any way?

11:42 11 A. No, I --

11:42 12 MS. ZORNBERG: Object to form.

11:42 13 A. I had no real knowledge in that  
11:42 14 regard.

11:42 15 Q. Okay. Can we turn to Table A of  
11:42 16 your report, please.

11:42 17 A. Sure.

11:42 18 Q. It's on page 59. Earlier today  
11:42 19 we discussed that you asked counsel to do  
11:42 20 research into certain digital asset trading  
11:42 21 platforms. Is that correct?

11:42 22 A. I asked counsel to help me do  
11:42 23 research on the exchanges set out in Table A.

11:42 24 Q. Okay. And are the results of  
11:42 25 counsel's research reflected in Table A?

11:42 1 MS. ZORNBERG: Objection.

11:42 2 First of all, I think it's -- I  
11:43 3 think you're asking about -- I'm  
11:43 4 going --

11:43 5 Professor Yadav, you can answer  
11:43 6 without disclosing conversations with  
11:43 7 counsel.

11:43 8 I also just object to the form.

11:43 9 A. Counsel helped me do research.  
11:43 10 The research that is reflected in Table A  
11:43 11 reflects counsel's help as well as, obviously,  
11:43 12 my research and my review and consideration of  
11:43 13 the work provided to me by counsel.

11:43 14 Q. After receiving the research that  
11:43 15 counsel conducted related to what is presently  
11:43 16 displayed in Table A, what changes, if any,  
11:43 17 did you make to that information that you  
11:43 18 received from counsel?

11:43 19 MS. ZORNBERG: Objection.

11:43 20 Assumes facts not in evidence. Lack of  
11:44 21 foundation.

11:44 22 Q. You can answer if you can.

11:44 23 A. Could you repeat the question.

11:44 24 MR. SYLVESTER: Could you read  
11:44 25 her that back, madam court reporter.

11:44 1 (Record read by the certified  
2 stenographer as follows:  
3 "QUESTION: After receiving the  
4 research that counsel conducted related  
5 to what is presently displayed in Table  
6 A, what changes, if any, did you make to  
7 that information that you received from  
11:44 8 counsel?")  
11:44 9 MS. ZORNBERG: Same objection.  
11:44 10 You can answer.  
11:44 11 A. It's very hard to recall specific  
11:44 12 changes here.  
11:44 13 Q. Sitting here today, can you  
11:44 14 recall whether you made any changes?  
11:44 15 A. I would imagine I did, yes.  
11:44 16 Sitting here today, I would imagine so.  
11:44 17 Q. To make sure I understand your  
11:44 18 answer, drawing a distinction between having a  
11:45 19 recollection and assuming you might have, do  
11:45 20 you have a recollection that you made changes?  
11:45 21 A. I have a recollection that I made  
11:45 22 changes.  
11:45 23 Q. Okay.  
11:45 24 A. I can't say which ones.  
11:45 25 Q. Let's take a look at Exhibit B to



11:45 1 your report.

11:45 2 With respect to the Bates-stamped  
11:45 3 materials beginning on page 3, did you request  
11:45 4 any of these documents from counsel?

11:45 5 A. I'm sorry, which materials are  
11:45 6 you referring to?

11:45 7 Q. There's a subheading on page 3 of  
11:45 8 Exhibit B that's entitled "Bates-stamped  
11:45 9 materials."

11:45 10 Do you see that?

11:45 11 A. "Bates-stamped materials"?

11:46 12 Q. Yes. So my question was whether  
11:46 13 you requested from counsel any of the  
11:46 14 documents that are listed under the subheading  
11:46 15 "Bates-stamped materials."

11:46 16 A. I requested "Terms of Use"  
11:46 17 certainly, yes.

11:46 18 Q. How about the documents ending  
11:46 19 with the Bates-stamped digits and prior to the  
11:46 20 digits RFA that are listed on page 6?

11:46 21 A. I'm sorry. I don't --

11:46 22 MS. ZORNBERG: Object to form.

11:46 23 A. I'm so sorry. I can't find the  
11:47 24 material you're referencing on page 6.

11:47 25 Q. So do you see on the top of page

11:47 1 6, there's a number of bullets?

11:47 2 A. Yes.

11:47 3 Q. Okay. And do you see how the --  
11:47 4 my understanding is that after each bullet is  
11:47 5 a reference to a document by Bates stamp. Is  
11:47 6 that correct?

11:47 7 MS. ZORNBERG: Object to form.

11:47 8 Q. Do you need me to clarify?

11:47 9 A. Yes, please. Because I'm not  
11:47 10 sure I'm looking at the same thing.

11:47 11 Q. I'm on Exhibit B, "Materials  
11:47 12 Considered and Relied Upon," and page 6 of  
11:47 13 Exhibit B.

11:47 14 A. I'm on page 6.

11:47 15 Q. Okay. And at the top of page 6,  
11:47 16 are you looking at a series of approximately  
11:47 17 ten bullets?

11:48 18 A. 11.

11:48 19 Q. Okay. And do each of those  
11:48 20 bullets end with a digit?

11:48 21 A. They do.

11:48 22 Q. And at the prior -- strike that.  
11:48 23 Prior to the digits, do you see  
11:48 24 the letters RFA for each of those bullets?

11:48 25 A. I do.

11:48 1 Q. Okay. Do you understand each of  
11:48 2 those bullets to be a reference to a document?

11:48 3 A. I do.

11:48 4 Q. Okay. Did you request the  
11:48 5 documents referenced by those bullets at the  
11:48 6 top of page 6?

11:48 7 A. I really --

11:48 8 MS. ZORNBERG: Objection.

11:48 9 A. I can't recall. I'm sorry.

11:48 10 Q. Did you review each of the  
11:48 11 documents that are listed in Exhibit B?

11:48 12 A. As far as I can recall, I  
11:48 13 reviewed the documents listed in Exhibit B.

11:48 14 Q. Turning to page 8 of your Exhibit  
11:49 15 B, do you see where it says "Statutes and  
11:49 16 Regulations"?

11:49 17 A. Yes, I do.

11:49 18 Q. And under Statutes and  
11:49 19 Regulations, there is one statute and one  
11:49 20 regulation listed. Do you see that?

11:49 21 A. Yes, I do.

11:49 22 Q. How did those -- strike that.  
11:49 23 How did that statute and that  
11:49 24 regulation inform your opinions in this case?

11:49 25 A. This was, I believe, a general

11:49 1 reference to the role played by traditional  
11:49 2 exchanges as overseers of marketplaces in the  
11:49 3 report.

11:49 4 Q. Did you consider Section 5 of the  
11:49 5 Securities Act of 1933 as part of your  
11:49 6 opinion?

11:49 7 A. I did not. I'm not here to give  
11:49 8 a legal opinion. I'm here as a market  
11:49 9 structure expert.

11:49 10 Q. Are you offering any opinion  
11:49 11 regarding whether or not defendants violated  
11:49 12 Section 5 as part of the conduct at issue in  
11:50 13 this matter?

11:50 14 A. I am not.

11:50 15 Q. Did you consider any case law as  
11:50 16 part of your opinion?

11:50 17 A. I don't believe I did.

11:50 18 Q. Are you familiar with the United  
11:50 19 States Supreme Court's United States versus  
11:50 20 Morrison decision?

11:50 21 A. I'm not here as a legal expert.  
11:50 22 I am here as a expert in market structure and  
11:50 23 would prefer to talk about market structure.

11:50 24 Q. Be that as it may, are you  
11:50 25 familiar with that decision?

11:50 1 A. I am, yes.

11:50 2 Q. Are you offering an opinion on  
11:50 3 whether the supreme court's holding in United  
11:50 4 States versus Morrison applies to the conduct  
11:50 5 at issue in this case?

11:50 6 A. I'm not offering an opinion.

11:50 7 Q. Okay. Does the opinion in United  
11:50 8 States versus Morrison inform your opinion at  
11:50 9 all in this case?

11:50 10 MS. ZORNBERG: Objection.

11:50 11 A. No, it does not.

11:50 12 Q. Are you offering an opinion as to  
11:50 13 whether the supreme court's holding in United  
11:50 14 States versus Morrison extends to Section 5 of  
11:50 15 the Securities Act?

11:50 16 A. I'm not offering that opinion.

11:51 17 Q. Are you offering any opinion on  
11:51 18 the efficiency of the XRP market?

11:51 19 A. No.

11:51 20 MS. ZORNBERG: Object to form.

11:51 21 A. No.

11:51 22 Q. Do you understand the question  
11:51 23 that I just asked?

11:51 24 A. I believe so.

11:51 25 Q. Okay. Let's turn to paragraph 32

11:51 1 of your report, please. That's on page 17.

11:51 2 The second sentence says:

11:51 3 "To operationalize trading,  
11:51 4 cryptocurrency exchanges utilize key  
11:51 5 conventions that have long been relied  
11:51 6 on by traditional venues to enable order  
11:51 7 submission, matching, trade execution,  
11:51 8 and information dissemination."

11:52 9 Do you see that?

11:52 10 MS. ZORNBERG: Mark, if you could  
11:52 11 just slow down a little in your  
11:52 12 questioning, I'd appreciate it.

11:52 13 MR. SYLVESTER: Sure.

11:52 14 A. I'm sorry. Which paragraph are  
11:52 15 you referring to?

11:52 16 Q. It's paragraph 32 and I just read  
11:52 17 into the record the second sentence.

11:52 18 A. Paragraph 32. Okay. Sorry.

11:52 19 Q. My question is: Which key  
11:53 20 conventions are you referring to in that  
11:53 21 sentence?

11:53 22 A. As described in detail in the  
11:53 23 report, there are a number. For example, in  
11:53 24 relation to order submission, order matching,  
11:53 25 the kind of central limit order book

11:53 1 convention that is deployed in cryptocurrency  
11:53 2 exchanges to match transactions and conclude  
11:53 3 them and finalize them, for example.

11:53 4 Q. How did you determine that crypto  
11:53 5 exchanges utilized the key conventions you  
11:53 6 just listed?

11:53 7 A. This was based off of my own  
11:53 8 research as well as through the review of the  
11:53 9 terms of service of the exchanges, 24 of the  
11:53 10 exchanges set out in Table A.

11:53 11 Q. When you say your "own research,"  
11:54 12 are you referring to research you conducted in  
11:54 13 preparing your expert opinion or different  
11:54 14 research?

11:54 15 A. My general research into market  
11:54 16 structure as well as the general research I do  
11:54 17 into cryptocurrency markets as part of my  
11:54 18 work.

11:54 19 Q. Is the research that you just  
11:54 20 described research that you conducted separate  
11:54 21 from forming your opinion in this case?

11:54 22 A. The research that I have relied  
11:54 23 on is set out in the footnotes to this  
11:54 24 opinion.

11:54 25 Q. Turning to paragraph 33, about

11:54 1 midway through the paragraph, you write:

11:54 2 "Instead, the exchange's 'floor'  
11:54 3 is more accurately seen as a function of  
11:54 4 its internal computerized matching  
11:54 5 engines."

11:54 6 Do you see that?

11:54 7 A. I do, yes.

11:54 8 Q. Why is it -- strike that.

11:54 9 What properties of a trading  
11:54 10 floor are now reflected with respect to  
11:55 11 cryptocurrency exchanges in internalized  
11:55 12 computerized matching engines?

11:55 13 MS. ZORNBERG: Object to form.

11:55 14 A. This paragraph references  
11:55 15 traditional financial markets, as in  
11:55 16 traditional financial exchanges and not  
11:55 17 necessarily crypto exchanges.

11:55 18 However, the "floor," as it's  
11:55 19 referenced here, means the order submission,  
11:55 20 order matching, and finalizing is done in an  
11:55 21 electronic and dematerialized way.

11:55 22 Q. And is the description of the  
11:55 23 floor that you just gave with respect to  
11:55 24 traditional exchanges also true of  
11:55 25 cryptocurrency exchanges?



11:55 1 A. As set out in my opinion,  
11:55 2 cryptocurrency exchanges deeply borrow the  
11:55 3 order submission, matching, finalizing  
11:55 4 conventions from traditional marketplaces,  
11:55 5 yes.

11:55 6 Q. What is an internal computerized  
11:56 7 matching engine?

11:56 8 A. An internal computerized matching  
11:56 9 engine references the matching protocols used  
11:56 10 by the exchange that take incoming orders and  
11:56 11 match them in accordance with preset rules to  
11:56 12 finalize a trade on the exchange.

11:56 13 Q. Can you explain what you mean by  
11:56 14 the word "protocols"?

11:56 15 A. A protocol references the  
11:56 16 algorithms, essentially, that are programmed  
11:56 17 to deploy a certain matching convention. For  
11:56 18 example, many central limit order books that  
11:56 19 matching engines use, use a price-time  
11:56 20 priority convention, which is referenced and  
11:56 21 detailed in the report.

11:56 22 Q. When you say "algorithms," are  
11:56 23 you referencing a computer software?

11:56 24 MS. ZORNBERG: Object to form.

11:56 25 A. It's a broad question. I'm not

11:56 1 an computer expert. Based off my own  
11:57 2 knowledge and research into the area, what I'm  
11:57 3 referencing are essentially preprogrammed  
11:57 4 computerized sequences that reflect a certain  
11:57 5 protocol to match incoming orders.

11:57 6 Q. I guess what I'm getting at is:  
11:57 7 This matching is done by a computer, not by a  
11:57 8 person receiving the order. Is that fair?

11:57 9 A. In electronic exchanges, the  
11:57 10 matching is done automatically by algorithms  
11:57 11 that receive the orders.

11:57 12 Q. Computerized algorithms?

11:57 13 A. Algorithms are computerized, yes.

11:57 14 Q. The very last sentence of  
11:57 15 paragraph 33, you state:

11:57 16 "In this way, the 'floor' or  
11:57 17 'pit' is now very much electronic and  
11:57 18 essentially dematerialized."

11:58 19 Do you see that?

11:58 20 A. I do, yes.

11:58 21 Q. What does "essentially  
11:58 22 dematerialized" mean?

11:58 23 A. Means it's essentially  
11:58 24 electronic.

11:58 25 Q. Going back to an internal

11:58 1 computerized matching engine, where is an  
11:58 2 exchange's computerized matching engine  
11:58 3 typically located?

11:58 4 A. Depends on the exchange.

11:58 5 Q. Can you give me one example?

11:58 6 A. It's very hard to describe  
11:58 7 exactly and answer the question exactly as you  
11:58 8 state it. The matching engines of an exchange  
11:58 9 reflect a number of its roles and processes  
11:58 10 which can't necessarily be confined to a  
11:58 11 computer.

11:58 12 Q. Can you say more about how they  
11:59 13 can't be confined to a computer?

11:59 14 A. For example, when you have the  
11:59 15 central limit order book of an exchange, it  
11:59 16 reflects the various rules and processes that  
11:59 17 an exchange puts in place to make sure that  
11:59 18 that central limit order book has actual  
11:59 19 meaning. In other words, when trades come in,  
11:59 20 they become binding.

11:59 21 Q. And in your view, are those  
11:59 22 various rules and processes in a different  
11:59 23 location than the internal computerized  
11:59 24 matching engine?

11:59 25 MS. ZORNBERG: Object to form.

11:59 1                   You can answer.

11:59 2                   A.     Those rules and processes are a  
11:59 3                   function of the exchange itself, wherever that  
11:59 4                   exchange is located.

11:59 5                   Q.     Are the rules and processes  
11:59 6                   themselves computer programs?

11:59 7                   A.     Not necessarily, no.

11:59 8                   Q.     Okay.  So I want to go back to  
11:59 9                   where an exchange's matching engine is  
11:59 10                  located.

12:00 11                  In your view, is -- does that  
12:00 12                  matching take place on the exchange's servers?

12:00 13                  A.     Part of it may -- part of it will  
12:00 14                  take place -- there'll be a server involved  
12:00 15                  somewhere.  However, the matching process is  
12:00 16                  much more than an interaction on a server.

12:00 17                  It reflects the rules and  
12:00 18                  processes that give that order form, that give  
12:00 19                  that matching actual content, which means that  
12:00 20                  that bargain becomes binding and the exchange  
12:00 21                  moves forward to enforce that binding bargain  
12:00 22                  in accordance with its rules and processes.

12:00 23                  Q.     Okay.  So part of the matching  
12:00 24                  takes place on a server.  Is that right?

12:00 25                  A.     I'm not a computer expert.  I'm

12:00 1 not here to provide a expert -- expertise in  
12:00 2 relation to computer science. Some part of  
12:00 3 that mechanical aspect of the matching may  
12:00 4 take place on a server somewhere.

12:00 5 Q. The mechanical aspect is exactly  
12:00 6 what I'm getting at, and you're free to draw  
12:00 7 any lines around your expert opinion. But I  
12:01 8 want to tease out what your opinions are about  
12:01 9 that. So --

12:01 10 MS. BUNTING: Objection.

12:01 11 Q. So is the -- what part of the  
12:01 12 matching process takes place on the server?

12:01 13 A. Again, I'm --

12:01 14 MS. ZORNBERG: Objection.

12:01 15 Just -- objection. Asked and answered.  
12:01 16 You can answer again.

12:01 17 A. I would dispute the contention  
12:01 18 that the matching that takes place is anything  
12:01 19 other than the interaction of one byte,  
12:01 20 b-y-t-e, as it were, with another.

12:01 21 The actual matching, as it were,  
12:01 22 is undertaken in accordance with the  
12:01 23 exchange's preset rules, the central limit  
12:01 24 order book, as well as its system of  
12:01 25 governance that gives that matching form and

12:01 1 binding quality.

12:01 2 Q. Does that interaction between two  
12:01 3 bytes take place in any particular geographic  
12:01 4 location, in your view?

12:01 5 MS. ZORNBERG: Object to the  
12:01 6 form.

12:01 7 A. I have really no response to  
12:02 8 that. I don't know.

12:02 9 Q. Is that interaction of bytes that  
12:02 10 you just described necessary in order to  
12:02 11 complete a trade on a cryptocurrency exchange?

12:02 12 A. It is necessary but not  
12:02 13 sufficient.

12:02 14 Q. What else is needed?

12:02 15 A. What else -- as detailed in the  
12:02 16 report and as set out in my prior answer, what  
12:02 17 is needed here is the rules and processes of  
12:02 18 an exchange that ensure that matching has  
12:02 19 formed, that ensure that the matching follows  
12:02 20 a certain convention such as a price-time  
12:02 21 priority model, that the exchange then honors  
12:02 22 that bargain and forces that bargain as  
12:02 23 between the parties concerned.

12:02 24 Q. Geographically, where are the  
12:02 25 rules and processes of an exchange located?

12:02 1 A. On the exchange.

12:03 2 Q. When you say "on the exchange,"  
12:03 3 can you be more specific?

12:03 4 MS. ZORNBERG: Objection.

12:03 5 A. In my opinion, those rules and  
12:03 6 processes are located where the exchange is  
12:03 7 located.

12:03 8 Q. And when we're discussing rules  
12:03 9 and processes, are we thinking about a paper  
12:03 10 document, are we thinking about a computer  
12:03 11 program? Can you tell me how the rules and  
12:03 12 processes are embodied in the world?

12:03 13 MS. ZORNBERG: Objection.

12:03 14 A. The way I understand it, those  
12:03 15 rules and processes are embodied as part of  
12:03 16 the exchange's institution and its governance  
12:03 17 processes, its internal governance, its rule  
12:03 18 book that sets out the rules for parties to  
12:03 19 follow.

12:03 20 And that ensures those rules  
12:03 21 become binding in accordance with the party's  
12:03 22 agreement to those rules, which includes the  
12:03 23 order submission, order binding, and order  
12:04 24 finalization processes.

12:04 25 Q. Is that rule book a material,

12:04 1 physical rule book, like, a physical book? Or  
12:04 2 is it something else?

12:04 3 A. That's very broad. It depends on  
12:04 4 the exchange.

12:04 5 Q. Sitting here today, do you know  
12:04 6 of any exchanges where the rule book takes the  
12:04 7 form of an actual physical book?

12:04 8 A. I really can't speak to every  
12:04 9 particular exchange and how they document  
12:04 10 their rule book. The way in which that rule  
12:04 11 book is documented can vary.

12:04 12 Q. Understanding that, I'm just  
12:04 13 asking if you can think of any example within  
12:04 14 your knowledge where the rule book that you  
12:04 15 referenced in your earlier testimony takes the  
12:04 16 form of an actual physical book.

12:04 17 A. I'm sure there's a physical book  
12:04 18 for most exchanges. For example, the CME, as  
12:04 19 detailed here, has a rule book. That rule  
12:04 20 book is very thick, deep. You can find it  
12:05 21 online. And I imagine the CME keeps a hard  
12:05 22 copy for those members that need it.

12:05 23 Q. Now, focusing just on  
12:05 24 cryptocurrency exchanges, are you aware of any  
12:05 25 cryptocurrency exchanges where the rule book



12:05 1 that you referenced in your earlier testimony  
12:05 2 is also actually a physical book?

12:05 3 A. You know, cryptocurrency  
12:05 4 exchanges, as set out in this report,  
12:05 5 stipulate various terms and conditions with  
12:05 6 their members, which are highlighted here,  
12:05 7 that require consent by those trading on the  
12:05 8 exchange to consent to the rules of the  
12:05 9 exchange.

12:05 10 If that's done in paper form,  
12:05 11 perhaps that's the case. I don't know.

12:05 12 Q. And sitting here today, you're  
12:05 13 not sure one way or the other whether those  
12:05 14 rule books that you just described are or are  
12:05 15 not in paper form. Is that right?

12:05 16 MS. ZORNBERG: Object to form.

12:05 17 A. I really don't understand the  
12:05 18 thrust of the question. In other words, it's  
12:05 19 perfectly possible to print a document and put  
12:06 20 it in paper form.

12:06 21 Q. Right. I'm trying to understand  
12:06 22 in your view where physically in the world all  
12:06 23 components of a trade take place. And one --

12:06 24 MS. ZORNBERG: Objection. Sorry.

12:06 25 Q. -- one of the items you listed

12:06 1 that's necessary for completion of a trade is  
12:06 2 a rule book. Is that right?

12:06 3 MS. ZORNBERG: Object to form.

12:06 4 A. One of them, yes.

12:06 5 Q. And so the reason why I'm asking  
12:06 6 is -- is it in physical form is because if it  
12:06 7 was in physical form, we could determine its  
12:06 8 physical location in the world. Right?

12:06 9 MS. ZORNBERG: Objection.

12:06 10 A. Perhaps, yeah.

12:06 11 Q. So are you aware of  
12:06 12 cryptocurrency exchanges keeping a rule book  
12:06 13 in a physical form?

12:06 14 A. I imagine they might.

12:06 15 Q. Setting aside whether they might,  
12:06 16 are you aware that they do?

12:06 17 MS. ZORNBERG: Object to form.

12:06 18 A. I really can't speak to whether  
12:06 19 they do or not. I've not examined the -- I've  
12:06 20 not -- gone into a cryptocurrency exchange to  
12:07 21 examine whether they keep their paper rule  
12:07 22 book or not.

12:07 23 Q. Once a trade has happened on a  
12:07 24 cryptocurrency exchange, is it recorded  
12:07 25 somewhere?

12:07 1 A. Yes.

12:07 2 Q. Where?

12:07 3 A. On the internal books and records  
12:07 4 of the exchange.

12:07 5 Q. Where are those located for  
12:07 6 cryptocurrency exchanges?

12:07 7 A. In my opinion, they are located  
12:07 8 at the exchange.

12:07 9 Q. Are the internal books and  
12:07 10 records of the -- of cryptocurrency exchanges  
12:07 11 kept in paper format typically?

12:07 12 A. I don't know. I imagine there's  
12:07 13 a digital and paper record potentially.

12:07 14 Q. Setting aside what you imagine  
12:07 15 and just focusing on what you know for sure,  
12:07 16 do cryptocurrency exchanges keep their books  
12:08 17 and records on which they record trades in  
12:08 18 physical paper format?

12:08 19 MS. ZORNBERG: Object to form.

12:08 20 A. I would imagine it would be very  
12:08 21 useful for cryptocurrency exchanges to keep  
12:08 22 books and records in paper form.

12:08 23 Q. And I just want to follow up  
12:08 24 because you've used the word "imagine" twice  
12:08 25 now. And I appreciate your answer, but I want

12:08 1 to just --

12:08 2 A. Sure.

12:08 3 Q. -- carve out what you imagine and  
12:08 4 focus just on what you know.

12:08 5 So do you know one way or the  
12:08 6 other whether cryptocurrency exchanges keep  
12:08 7 the records of completed trades in paper form?

12:08 8 MS. BUNTING: Objection.

12:08 9 A. I think for exchanges it is  
12:08 10 extremely advisable, like it is for  
12:08 11 traditional exchanges, to keep books and  
12:08 12 records in paper form. And some --

12:08 13 Q. Go ahead. I'm sorry. Please  
12:08 14 finish.

12:08 15 A. No, that's it.

12:08 16 Q. So you've said it's advisable,  
12:08 17 but that doesn't tell me whether or not they  
12:09 18 actually do it.

12:09 19 So could you let me know whether  
12:09 20 or not you know whether cryptocurrency  
12:09 21 exchanges keep their records of trades in  
12:09 22 paper form?

12:09 23 MS. ZORNBERG: Object to form.

12:09 24 Asked and answered.

12:09 25 You can answer.

12:09 1           A.     For example, in the case of  
12:09 2           traditional exchanges, rules pertaining to  
12:09 3           that exchange itself require the keeping of  
12:09 4           paper records in order to maintain the  
12:09 5           integrity of paper records. And that's set  
12:09 6           out in my report.

12:09 7                     I would imagine that  
12:09 8           cryptocurrency exchanges may be subject or  
12:09 9           would think it would be advisable to do a  
12:09 10          similar thing.

12:09 11          Q.     Are you aware of any such rules  
12:09 12          governing cryptocurrency exchanges?

12:09 13                   MS. BUNTING: Objection.

12:09 14          A.     As I sit here today, I'm not  
12:09 15          aware of any rules, however there certainly  
12:09 16          may be, as the regulatory rules here are  
12:09 17          developing.

12:09 18          Q.     And setting aside what any rules  
12:09 19          governing cryptocurrency exchanges might  
12:09 20          require, are you aware of any cryptocurrency  
12:10 21          exchanges that keep their trading records in  
12:10 22          paper form?

12:10 23                   MS. ZORNBERG: Object to form.

12:10 24          A.     In my opinion, it would be  
12:10 25          important for cryptocurrency exchanges to keep

12:10 1 records in paper form, owing to potential  
12:10 2 disruptions, damage, that may occur to digital  
12:10 3 formats.

12:10 4 Q. Professor, with all due respect,  
12:10 5 I understand your opinion that it would be  
12:10 6 important for them to do so. But I'm trying  
12:10 7 to focus on what it is that you know as to  
12:10 8 what they actually do.

12:10 9 So do you know one way or the  
12:10 10 other whether cryptocurrency exchanges keep  
12:10 11 their trading records in paper form?

12:10 12 MS. ZORNBERG: Objection. Asked  
12:10 13 and answered.

12:10 14 You can answer.

12:10 15 A. I can't speak to every  
12:10 16 cryptocurrency exchange as to how they keep  
12:10 17 their books and records.

12:10 18 Q. Are you aware of any  
12:10 19 cryptocurrency exchange that keeps its records  
12:10 20 in paper form?

12:10 21 A. I would be shocked if there  
12:10 22 wasn't one.

12:10 23 Q. Sitting here today, are you aware  
12:11 24 of any?

12:11 25 A. I'm not aware of one. But again,

12:11 1 like I said, I would be shocked if there  
12:11 2 wasn't one or many, in fact.

12:11 3 Q. If a cryptocurrency exchange did  
12:11 4 not keep their trading records in paper form,  
12:11 5 how do they keep them?

12:11 6 MS. ZORNBERG: Objection.

12:11 7 A. Presumably, they would keep them  
12:11 8 in some kind of digital storage.

12:11 9 Q. And where would that digital --  
12:11 10 strike that.

12:11 11 Where is that digital storage  
12:11 12 located?

12:11 13 MS. ZORNBERG: Objection. Lack  
12:11 14 of foundation.

12:11 15 A. I have no idea.

12:11 16 Q. Okay. Let's turn to paragraph  
12:11 17 37, please. The second sentence of paragraph  
12:11 18 37 says:

12:12 19 "Here, there is significant  
12:12 20 convergence on the key principles among  
12:12 21 exchanges."

12:12 22 Do you see that?

12:12 23 A. I do.

12:12 24 Q. Okay. Can you tell me what you  
12:12 25 mean by "significant convergence"?

12:12 1 A. What I mean by that is that there  
12:12 2 is significant commonality in the practice of  
12:12 3 the fact that when orders match, they become  
12:12 4 final.

12:12 5 Q. Significant commonality between  
12:12 6 what and what?

12:12 7 A. Between traditional marketplaces  
12:12 8 and the -- the fact that exchanges essentially  
12:12 9 cue to the principle that when orders match,  
12:12 10 they become final.

12:12 11 Q. Are you aware of any traditional  
12:12 12 financial exchanges where a buyer or a  
12:12 13 seller's order becomes binding as soon as the  
12:12 14 order is placed but before it is matched?

12:12 15 MS. ZORNBERG: Object to form.

12:13 16 You can answer.

12:13 17 A. I'm sorry, are you asking -- can  
12:13 18 you repeat that question, please.

12:13 19 Q. Of course. Are you aware of any  
12:13 20 traditional financial exchanges where an order  
12:13 21 becomes binding as soon as the order is placed  
12:13 22 but before it is matched?

12:13 23 MS. ZORNBERG: Same objection.

12:13 24 A. Not that I can think of.

12:13 25 Q. Are you aware of any



12:13 1 cryptocurrency exchanges where an order  
12:13 2 becomes binding as soon as the order is placed  
12:13 3 but before it is matched?

12:13 4 A. No.

12:14 5 Q. Let's look at paragraph 41,  
12:14 6 please. The second sentence states:

12:14 7 "Orders may be submitted from  
12:14 8 around the world, while still executing  
12:14 9 within the order books of an exchange  
12:14 10 and within its home jurisdiction."

12:14 11 Do you see that?

12:14 12 A. Yes, I do.

12:14 13 Q. Okay. Where is an exchange's  
12:14 14 order book located?

12:14 15 A. In my opinion, an exchange's  
12:14 16 order book is located at the exchange.

12:14 17 Q. When you say "in your opinion,  
12:14 18 the order book is located at the exchange" --  
12:14 19 strike that.

12:15 20 Is the order book that's being  
12:15 21 referenced -- strike that.

12:15 22 Is the order book that you  
12:15 23 reference in paragraph 41 a physical book?

12:15 24 A. The -- it may be. Order books  
12:15 25 tend to be digital in electronic markets.

12:15 1 Q. Are you aware of any  
12:15 2 cryptocurrency exchange whose order book is a  
12:15 3 physical book?

12:15 4 A. Not that I can think of.

12:15 5 Q. You testified order books tend to  
12:15 6 be digital in electronic markets. Is that  
12:15 7 right?

12:15 8 MS. ZORNBERG: Objection. Asked  
12:15 9 and answered.

12:15 10 Q. Is that correct?

12:15 11 A. Yes.

12:15 12 Q. Where are digital order books  
12:15 13 kept?

12:15 14 A. Again, that's a very broad  
12:16 15 question.

12:16 16 Q. If a record book is digital,  
12:16 17 where in the world does it exist?

12:16 18 A. In my opinion, the --

12:16 19 MS. BUNTING: Objection.

12:16 20 A. Sorry. In my book -- in my  
12:16 21 opinion, that order book exists at the  
12:16 22 exchange.

12:16 23 Q. What does the -- where are the  
12:16 24 digital records of an order book maintained  
12:16 25 physically?

12:16 1 MS. ZORNBERG: Objection.

12:16 2 MS. BUNTING: Objection.

12:16 3 A. The digital order book of the  
12:16 4 exchange references the orders that are coming  
12:16 5 into the exchange and going into its central  
12:16 6 limit order book.

12:16 7 That is a function of what the  
12:16 8 exchange does and is determined, as before, by  
12:16 9 the various rules and processes of the  
12:16 10 exchange that ensure those order books have  
12:17 11 form and that protocols applied to those order  
12:17 12 books to match the orders as they come in.

12:17 13 Q. And as a practical matter, is the  
12:17 14 process that you just described executed by a  
12:17 15 computer program?

12:17 16 MS. ZORNBERG: Objection.

12:17 17 A. Some part of it.

12:17 18 Q. Which part is not?

12:17 19 MS. ZORNBERG: Objection.

12:17 20 A. As detailed in this opinion as  
12:17 21 well as in our answers in our conversation  
12:17 22 already, that matching process has multiple  
12:17 23 parts to it. Orders match mechanically. That  
12:17 24 matching has form and content based on the  
12:17 25 governance and rules and processes of that

12:17 1 exchange.

12:17 2 Q. When you say "orders match  
12:17 3 mechanically," is that a reference to orders  
12:17 4 matching through a computer program?

12:17 5 A. Some part of it will match, the  
12:17 6 b-y-t-e will match on a computer at some point  
12:18 7 at some level, yes.

12:18 8 Q. Can you describe to me what  
12:18 9 portions of the order book are not executed by  
12:18 10 a computer program?

12:18 11 MS. ZORNBERG: Object to form.

12:18 12 A. Sure. The order book exists to  
12:18 13 collect the orders, match those orders, make  
12:18 14 them final. Then the exchange has to enforce  
12:18 15 that bargain.

12:18 16 In some cases, that enforcement  
12:18 17 takes place using actual human beings that are  
12:18 18 responsible for verifying the orders, making  
12:18 19 sure that the order book has integrity in real  
12:18 20 time, as well as finally, potentially, dealing  
12:18 21 with any disputes that may arise with respect  
12:18 22 to any orders that are concluded.

12:18 23 Q. You say in some cases human  
12:18 24 beings are involved. Is that typical?

12:19 25 MS. ZORNBERG: Object to form.

12:19 1 A. Human beings are involved even in  
12:19 2 the highly digital matching process because  
12:19 3 human beings have to check the constant  
12:19 4 integrity of the programs that are running.  
12:19 5 Where there's a problem, human beings have to  
12:19 6 get involved to fix that problem.

12:19 7 Q. Is the exchange's digital order  
12:19 8 book located on a server or elsewhere?

12:19 9 MS. ZORNBERG: Object to form.

12:19 10 A. Again, some part of it may be,  
12:19 11 but that order book has a far larger and more  
12:19 12 institutional existence than the simple  
12:19 13 mechanical matching of one byte with another.

12:19 14 Q. Is the institutional existence  
12:19 15 that you just referenced -- strike that.

12:19 16 Can you tell me what you mean by  
12:19 17 "institutional existence"?

12:19 18 A. The institutional existence that  
12:19 19 I referenced means the fact that the exchange  
12:20 20 has to develop a protocol for ensuring the  
12:20 21 order book has real form, for ensuring that  
12:20 22 binding bargains are enforced, for dealing  
12:20 23 with any problems that may arise, either in  
12:20 24 the context of a digital order book operating  
12:20 25 in real time, or in the context of potential

12:20 1 disputes that may arise in relation to  
12:20 2 concluded orders.

12:20 3 Q. Is the word "protocol," as you  
12:20 4 just used it, a reference to a computer  
12:20 5 program?

12:20 6 MS. ZORNBERG: Object to form.  
12:20 7 And I don't think her last answer used  
12:20 8 the word "protocol."

12:20 9 CERTIFIED STENOGRAPHER: Yes, it  
12:20 10 did. It didn't translate properly.

12:20 11 A. It doesn't have to. I mean, a  
12:20 12 computerized -- it doesn't have to be  
12:20 13 computerized. A protocol may be written  
12:20 14 outside of the computer and then potentially  
12:21 15 instrumentalized through a computer.

12:21 16 But a protocol is a general word  
12:21 17 referencing a set of conventions in relation  
12:21 18 to a particular exchange practice.

12:21 19 Q. Are all trades on cryptocurrency  
12:21 20 exchanges instrumentalized, at least in some  
12:21 21 part, through a computer program?

12:21 22 A. At some point, a computer may be  
12:21 23 involved. A computer -- certainly a computer  
12:21 24 is involved. However, the order matching,  
12:21 25 order submission, order conclusion, the

12:21 1 governance, making sure that disputes are  
12:21 2 dealt with, that is all a part of the larger  
12:21 3 institutional existence of the exchange. And  
12:21 4 no order can exist outside of it.

12:21 5 Q. The portion that takes place via  
12:21 6 a computer program, where in the world,  
12:21 7 geographically, does that take place?

12:21 8 MS. ZORNBERG: Objection.

12:21 9 A. I have no idea.

12:21 10 Q. Is it your view that locating  
12:22 11 computer servers around the world facilitates  
12:22 12 rapid trading?

12:22 13 A. It does facilitate rapid trading.  
12:22 14 It can facilitate rapid trading.

12:22 15 Q. In what way does locating  
12:22 16 computer servers around the word facilitate  
12:22 17 rapid trading?

12:22 18 A. For any number of reasons. I'm  
12:22 19 not a computer expert. So ...

12:22 20 Q. In that case, what's the basis  
12:22 21 for your belief that computer servers --  
12:22 22 strike that.

12:22 23 What's the basis for your belief  
12:22 24 that locating computer servers around the  
12:23 25 world facilitate rapid trading?

12:23 1 A. I know a lot about the topic  
12:23 2 based off my own research, in general, into  
12:23 3 high frequency markets.

12:23 4 Q. So if I understand your  
12:23 5 testimony, you understand that that statement  
12:23 6 is true. But from a mechanical perspective,  
12:23 7 you're not sure why. Is that fair?

12:23 8 A. I mean, it helps to ease  
12:23 9 communication between jurisdictions.

12:23 10 Q. Why is that?

12:23 11 A. It reduces the physical distance  
12:23 12 that communication has to travel.

12:23 13 Q. So if the physical distance  
12:23 14 between two servers is shorter, in general,  
12:23 15 the communication between those servers is  
12:23 16 faster. Is that right?

12:23 17 MS. ZORNBERG: Object to form.

12:23 18 A. Again, I'm not a computer expert.  
12:23 19 But just based off my own knowledge and  
12:23 20 research, that tends to be the case.

12:23 21 Q. Do any cryptocurrency exchanges  
12:23 22 that are based outside the United States have  
12:24 23 computer servers located in the United States?

12:24 24 A. I have no idea.

12:24 25 Q. Is it the case that the closer



12:24 1 one is physically to an exchange's server, the  
12:24 2 faster one can obtain price information and  
12:24 3 place trade orders?

12:24 4 MS. ZORNBERG: Objection.

12:24 5 Outside the scope.

12:24 6 A. It depends.

12:25 7 Q. What does it depend on?

12:25 8 A. It depends on any number of  
12:25 9 things. For example, even if you place a  
12:25 10 server closer to that of the exchange, it may  
12:25 11 not necessarily get that information faster,  
12:25 12 because you may not pay for a faster service.

12:25 13 Q. In your experience, do  
12:25 14 professional traders typically want to be  
12:25 15 located close to servers to obtain an  
12:25 16 advantage of speed of execution?

12:25 17 MS. ZORNBERG: Objection.

12:25 18 A. It depends on the trader.

12:25 19 Q. Is it typical within the  
12:25 20 professional trading industry for traders to  
12:25 21 want to be located close to servers for speed  
12:25 22 reasons?

12:25 23 MS. ZORNBERG: Objection.

12:25 24 A. It depends on the trader.

12:25 25 Q. And why do you say "it depends on

12:26 1 the trader"?

12:26 2 A. Some traders pursue strategies  
12:26 3 that depend on speed. Others don't.

12:26 4 Q. That's a very fair point. If the  
12:26 5 trader is concerned -- strike that.

12:26 6 If a trader is pursuing a  
12:26 7 strategy that depends on speed, is it typical  
12:26 8 for that trader to want to be physically  
12:26 9 located closer to a server?

12:26 10 MS. ZORNBERG: Object to form.

12:26 11 A. They may want to do that.

12:26 12 Q. Is it typical?

12:26 13 MS. ZORNBERG: Objection.

12:26 14 A. It is typical if their strategy  
12:26 15 is focused purely on speed to try and do that.  
12:26 16 Nevertheless, there are many contingencies  
12:26 17 that can still apply.

12:26 18 MS. ZORNBERG: Just, we're almost  
12:26 19 at 12:30. Just, I think, whenever you  
12:27 20 finish this line, maybe we can break.

12:27 21 MR. SYLVESTER: That sounds good.  
12:27 22 I think I have, like, a couple more  
12:27 23 questions.

12:27 24 MS. ZORNBERG: Okay.

12:27 25 Q. If a trader is typically

12:27 1 focused -- strike that.

12:27 2 If a trader's strategy is  
12:27 3 typically focused on speed of transaction, why  
12:27 4 is it that that trader might want to be  
12:27 5 located closer to a server?

12:27 6 A. Whose server? Sorry.

12:27 7 Q. The exchange's server.

12:27 8 MS. ZORNBERG: Object to form.

12:27 9 A. In general, a trader that is  
12:27 10 pursuing a speed-based strategy may want to  
12:27 11 co-locate alongside the servers of an exchange  
12:27 12 in order to try and get data faster and to be  
12:27 13 able to send orders quicker into the order  
12:27 14 submission system.

12:27 15 Q. Can you explain what you mean by  
12:27 16 "co-locate"?

12:27 17 A. Locate next to -- locate their  
12:28 18 servers next to the servers of the exchange.

12:28 19 MR. SYLVESTER: Okay. I think  
12:28 20 that's a good place to stop. Let's go  
12:28 21 off the record.

12:28 22 THE VIDEOGRAPHER: The time now  
12:28 23 is 12:28 p.m. This concludes Media 3.  
12:28 24 Off the record.

12:45 25 (Recess taken from 12:28 p.m. to

12:45 1 12:45 p.m.)

12:45 2 THE VIDEOGRAPHER: The time now  
12:45 3 is 12:45 p.m. This begins Media 4. On  
12:45 4 the record.

12:45 5 BY MR. SYLVESTER:

12:45 6 Q. Professor, why would co-locating  
12:45 7 a trader's server next to the servers of an  
12:45 8 exchange allow the trader to send his order  
12:45 9 quicker into the order submission system?

12:45 10 A. In general, co-location helps  
12:45 11 reduce the time it takes to send an order by  
12:45 12 reducing the distance that has to be traveled.

12:46 13 Q. When you reference distance in  
12:46 14 your answer, do you mean the distance between  
12:46 15 the trader's servers and the exchange's  
12:46 16 servers?

12:46 17 A. I did, yes.

12:46 18 Q. Okay. Let's go back to paragraph  
12:46 19 41, please. Professor, at the end of 41, do  
12:46 20 you see a discussion of the London Stock  
12:46 21 Exchange?

12:46 22 A. I do, yes.

12:46 23 Q. Where are the London Stock  
12:46 24 Exchange's order books?

12:46 25 A. In my opinion, in London.

12:46 1 Q. What is the basis for your  
12:47 2 opinion that the London Stock Exchange's order  
12:47 3 books are in London?

12:47 4 A. In my mind, in my opinion, the  
12:47 5 exchange's order books reflect the exchange's  
12:47 6 institutionalized processes for determining  
12:47 7 how orders match, what happens when they  
12:47 8 match, and for ensuring that the order becomes  
12:47 9 final and is enforced.

12:47 10 That system for doing so is  
12:47 11 located at the exchange, in this case, in the  
12:47 12 London Stock Exchange, where the stock  
12:47 13 exchange operates its central limit order  
12:47 14 book, orders go into that central limit order  
12:47 15 book, are finalized in accordance with the  
12:47 16 rules and processes of the London Stock  
12:47 17 Exchange, and enforced under the rules of the  
12:47 18 London Stock Exchange, as governed by the laws  
12:47 19 of England and Wales.

12:47 20 Q. Is the London Stock Exchange's  
12:47 21 central limit order book a physical book?

12:47 22 A. Some part of it might be.

12:48 23 Q. Is any part of it not a physical  
12:48 24 book?

12:48 25 A. The central limit order book

12:48 1 references the system whereby orders are  
12:48 2 collected, they're matched in accordance with  
12:48 3 a certain convention, they become binding and  
12:48 4 final based on that matching, and that central  
12:48 5 limit order book is then enforced by the  
12:48 6 exchange.

12:48 7 Q. Is any of what you just -- strike  
12:48 8 that.

12:48 9 Does any of what you just  
12:48 10 described take place via a computer program?

12:48 11 A. Some part of it will take place  
12:48 12 using a computer at some point.

12:48 13 Q. And for the portion of what you  
12:48 14 described that takes place via computer, is  
12:48 15 the data processed by that computer program  
12:48 16 located on the London Stock Exchange's  
12:48 17 servers?

12:48 18 MS. ZORNBERG: Object to form.

12:48 19 A. I would imagine so somewhere.

12:49 20 Q. You cite in Footnote --  
12:49 21 Footnote 73 and 75 the London Stock  
12:49 22 Exchange's -- "A Guide to London Stock  
12:49 23 Exchange Trading Service For Equity  
12:49 24 Securities."

12:49 25 Do you see that?

12:49 1 A. I do.

12:49 2 Q. Does the guide referenced in  
12:49 3 those footnotes say that orders are matched in  
12:49 4 London?

12:49 5 A. I can't recall.

12:49 6 Q. The second to last sentence of  
12:49 7 paragraph 41 reads:

12:49 8 "Nevertheless, even with these  
12:49 9 operations, including in the United  
12:49 10 States, it is clear that market  
12:49 11 participants understand the London Stock  
12:49 12 Exchange to be located in London, United  
12:49 13 Kingdom."

12:49 14 Can you tell me what the basis is  
12:49 15 for your statement that it is clear that the  
12:49 16 market participants understand that the LSE is  
12:50 17 located in London?

12:50 18 A. Yes, it's a common understanding  
12:50 19 that the London Stock Exchange is located in  
12:50 20 London. A part of that process involves  
12:50 21 market participants having to become a part of  
12:50 22 the London Stock Exchange in some form in  
12:50 23 order to be able to trade on it.

12:50 24 Q. So in order for a trader to trade  
12:50 25 in the London Stock Exchange, that trader has

12:50 1 to become a part of the London Stock Exchange  
12:50 2 in some way?

12:50 3 A. Has to be connected to the London  
12:50 4 Stock Exchange in some way, yes.

12:50 5 Q. Can you explain what you mean by  
12:50 6 "connected" in that context?

12:50 7 A. So, for example, you may have to  
12:50 8 use a particular broker that is a member of  
12:50 9 the London Stock Exchange in order to be able  
12:50 10 to trade.

12:50 11 Q. Are there any cryptocurrency  
12:50 12 exchanges that have similar requirements?

12:50 13 MS. ZORNBERG: Object to form.

12:51 14 A. Cryptocurrency -- cryptocurrency  
12:51 15 exchanges, as detailed in the report, require,  
12:51 16 for the most part, in the terms of service  
12:51 17 that I have reviewed, to have users download a  
12:51 18 particular wallet that is particular to that  
12:51 19 exchange itself.

12:51 20 Q. Is the -- strike that.

12:51 21 Is your answer the only  
12:51 22 similarity you can think of between the London  
12:51 23 Stock Exchange's requirement that a specific  
12:51 24 broker has to be affiliated with the exchange  
12:51 25 to trade on the exchange and cryptocurrency



12:51 1 exchanges?

12:51 2 MS. ZORNBERG: Objection.

12:51 3 Q. You can answer.

12:51 4 A. It's --

12:52 5 MS. ZORNBERG: Okay. You can  
12:52 6 answer.

12:52 7 A. I'm sorry, could you repeat the  
12:52 8 question.

12:52 9 Q. Can you tell me what it means to  
12:52 10 be a member of the London Stock Exchange?

12:52 11 A. Sure. To be a member of the  
12:52 12 London Stock Exchange means that you have  
12:52 13 certain rights and privileges in order to be  
12:52 14 able to trade on the London Stock Exchange,  
12:52 15 and members subscribe for that privilege.

12:52 16 Q. How is it that one becomes a  
12:52 17 member of the London Stock Exchange?

12:52 18 A. It's been a long time since I  
12:52 19 read those rules. There's a process.

12:52 20 Q. Is anyone required to be a member  
12:52 21 of a cryptocurrency exchange to trade on that  
12:52 22 exchange?

12:52 23 A. Crypto- --

12:52 24 MS. ZORNBERG: Object to form.

12:52 25 A. Cryptocurrency exchanges require

12:52 1 their users, in general and as detailed in  
12:53 2 this report, to submit to terms of service  
12:53 3 that require them to provide various  
12:53 4 representations as to who they are, get a  
12:53 5 wallet that is particular to that exchange,  
12:53 6 and ensure that they abide by the rules of the  
12:53 7 exchange including with respect to the trading  
12:53 8 process.

12:53 9 Q. Does taking the steps that you  
12:53 10 just described make a trader a member of a  
12:53 11 particular cryptocurrency exchange?

12:53 12 A. As far as I understand it, the  
12:53 13 concept of membership is different in the  
12:53 14 context of a cryptocurrency exchange. I don't  
12:53 15 believe they follow that same member-based  
12:53 16 structure that more traditional exchanges like  
12:53 17 the New York Stock Exchange and the London  
12:53 18 Stock Exchange follow.

12:53 19 Q. Returning to your statement about  
12:53 20 "it is clear that market participants  
12:54 21 understand that the LSE is located in London,"  
12:54 22 did you speak to any market participants about  
12:54 23 that topic?

12:54 24 A. Based on my own research and  
12:54 25 understanding, the fact that I was a lawyer in

12:54 1 London, the London Stock Exchange, for all  
12:54 2 intents and purposes, it would be absurd to  
12:54 3 think otherwise.

12:54 4 Q. I appreciate that. But did you  
12:54 5 speak to any market participants on the topic  
12:54 6 of their understanding of where the London  
12:54 7 Stock Exchange is located?

12:54 8 A. I haven't. It's such a basic  
12:54 9 question, it would be weird to ask.

12:54 10 Q. The next sentence, the concluding  
12:54 11 sentence of paragraph 41 says:

12:54 12 "As such, offers to buy and sell  
12:54 13 on the London Stock Exchange are made in  
12:54 14 London once they enter its order books,  
12:54 15 and trades become final there once  
12:54 16 offers match on its platform in  
12:54 17 accordance with the Exchange's rules and  
12:54 18 procedures."

12:54 19 Do you see that?

12:54 20 A. I do, yes.

12:54 21 Q. Is where the London Stock  
12:55 22 Exchange's offers to buy and sell match  
12:55 23 influenced, in your view, by where market  
12:55 24 participants understand the London Stock  
12:55 25 Exchange to be located?

12:55 1 MS. ZORNBERG: Object to form.

12:55 2 A. Could you repeat the question.

12:55 3 Q. Sure. What is the relevance, if  
12:55 4 at all, to market participants' understanding  
12:55 5 of where the London Stock Exchange is located  
12:55 6 to where the London Stock Exchange's orders  
12:55 7 match?

12:55 8 A. It's all part of the exchange.  
12:55 9 It's all part of where the exchange -- the  
12:55 10 institutional existence of the exchange.

12:55 11 Q. So in your view, a market  
12:56 12 participant's understanding of where an  
12:56 13 exchange is located has some relevance to the  
12:56 14 question of where its orders to buy and sell  
12:56 15 are matched?

12:56 16 A. Likely so.

12:56 17 Q. Can you explain the relevance?

12:56 18 A. The order submission process that  
12:56 19 the customer thinks they're entering into,  
12:56 20 they believe that it's happening in London.

12:56 21 If you take a look at the terms  
12:56 22 of service of the London Stock Exchange, in  
12:56 23 other words, its rule book, it sets out  
12:56 24 dispute resolution processes, for example,  
12:56 25 that need to be followed that consistently

12:56 1 reference the laws of England and Wales and  
12:56 2 obviously the London Stock Exchange in London.

12:56 3 And so the fact that investors  
12:56 4 are engaging in a direct way with the London  
12:56 5 Stock Exchange with all of the paraphernalia  
12:56 6 that references the London Stock Exchange as  
12:56 7 being in London, I think that's -- influences  
12:56 8 their judgment and certainly the -- that's  
12:57 9 a -- shows what they -- how they understand  
12:57 10 the order submission process there to  
12:57 11 function.

12:57 12 Q. In your view, is it obvious that  
12:57 13 the London Stock Exchange is located in  
12:57 14 London?

12:57 15 A. To me? Yes.

12:57 16 Q. Why is that?

12:57 17 A. For many reasons. The first is  
12:57 18 historical. The London Stock Exchange has  
12:57 19 centuries-deep roots in London. It is  
12:57 20 governed by the laws of England and Wales. It  
12:57 21 is governed by a rule book that has organized  
12:57 22 this marketplace for a very long time.

12:57 23 The London Stock Exchange also  
12:57 24 offers a particular set of products that  
12:57 25 reflect the fact that it is based in the

12:57 1 United Kingdom, and therefore, at a location  
12:57 2 which is in the middle of the US, Europe, and  
12:58 3 Asia.

12:58 4 And so the fact of being in  
12:58 5 London is, in fact, very important for the  
12:58 6 London Stock Exchange to actually have the  
12:58 7 kind of products that it offers to the rest of  
12:58 8 the global trading community.

12:58 9 Q. There are a number of  
12:58 10 cryptocurrency exchanges. Correct?

12:58 11 A. Yes.

12:58 12 MS. ZORNBERG: Object to form.

12:58 13 Q. What's the oldest?

12:58 14 A. Cryptocurrency exchanges?

12:58 15 Q. Yes.

12:58 16 A. Well, are you asking is it still  
12:58 17 in existence or not?

12:58 18 Q. No, I apologize. Of all the  
12:58 19 cryptocurrency exchanges that exist, which is  
12:58 20 the oldest?

12:58 21 A. I'm not sure if it still exists  
12:58 22 in some form, but my understanding is that the  
12:58 23 first real big exchange was the Mt. Gox  
12:58 24 exchange, which subsequently imploded.

12:58 25 Q. When was the Mt. Gox exchange

12:59 1 founded?

12:59 2 A. I believe it was  
12:59 3 around -- early -- maybe 2013-'14.

12:59 4 Q. Excluding Mt. Gox, what's the  
12:59 5 second oldest cryptocurrency exchange?

12:59 6 MS. ZORNBERG: Objection.  
12:59 7 Outside scope.

12:59 8 A. There -- you know, it's hard for  
12:59 9 me to say.

12:59 10 Q. Because you don't know?

12:59 11 MS. ZORNBERG: Objection.

12:59 12 Q. Just for clarity.

12:59 13 A. I don't know exactly which  
12:59 14 exchange was the second to come into existence  
12:59 15 after Mt. Gox.

12:59 16 Q. Sure. Paragraph 42, the last  
12:59 17 sentence reflects your view that it's:

12:59 18 "Clear that market participants  
12:59 19 understand that the Chicago Mercantile  
12:59 20 Exchange is located in Chicago" and the  
12:59 21 Tokyo Stock Exchange is located in  
01:00 22 Tokyo.

01:00 23 Do you see that?

01:00 24 A. I do, yes.

01:00 25 Q. Did you speak to any market

01:00 1 participants on the topic of their belief as  
01:00 2 to where either of those exchanges are  
01:00 3 located?

01:00 4 A. I did not.

01:00 5 Q. Okay. Did you review any  
01:00 6 literature regarding market participants'  
01:00 7 belief as to whether -- where either of those  
01:00 8 exchanges were located?

01:00 9 A. I don't know what you mean by  
01:00 10 "literature."

01:00 11 Q. I would include within literature  
01:00 12 any papers, articles, media.

01:00 13 MS. ZORNBERG: I'm going to  
01:00 14 object to form.

01:00 15 You can answer.

01:00 16 A. It's -- you know, there is a  
01:00 17 lengthy literature in relation to the history  
01:00 18 of the Chicago Mercantile Exchange, some of it  
01:00 19 which is referenced here, that speaks to the  
01:00 20 centrality of Chicago as the reason why the  
01:00 21 Chicago Mercantile Exchange came into being  
01:00 22 for the reasons it came into being.

01:01 23 There's an extensive literature  
01:01 24 detailing the importance of Chicago as one of  
01:01 25 the key players in the commodities



01:01 1 marketplace.

01:01 2 And so I imagine that is an  
01:01 3 important structural connection point between  
01:01 4 the minds of market participants and the  
01:01 5 trade -- trading hub itself.

01:01 6 The fact that Chicago is so  
01:01 7 essential to the economic history of the US,  
01:01 8 and in particular, the economic history of the  
01:01 9 commodities trading marketplace.

01:01 10 Q. Did any of the literature that  
01:01 11 you just described discuss the specific point  
01:01 12 of market participants' understanding of the  
01:01 13 location of the Chicago Mercantile Exchange?

01:01 14 MS. ZORNBERG: Object to form.

01:01 15 A. I don't actually know what that  
01:01 16 question really means.

01:01 17 I mean, I think the historical  
01:01 18 record in some of the articles speaks to folks  
01:02 19 meeting in Chicago in the earliest days to try  
01:02 20 and create a grain market, for example. So I  
01:02 21 don't know if that counts.

01:02 22 Q. Where are the Chicago Mercantile  
01:02 23 Exchange's order books located?

01:02 24 A. In Chicago.

01:02 25 Q. How do you know that?

01:02 1           A.     Well, the Chicago Mercantile  
01:02 2       Exchange is the Chicago Mercantile Exchange.  
01:02 3       Going back to my earlier answers, there's an  
01:02 4       institutional existence for the order book  
01:02 5       that encompasses the rule book of the exchange  
01:02 6       that encompasses the fact that the exchange  
01:02 7       has a presence in Chicago, the governance  
01:02 8       processes of the Chicago Mercantile Exchange,  
01:02 9       its rules and processes that give effect to  
01:02 10      the order book.

01:02 11           Q.     Where does the Chicago Mercantile  
01:02 12      Exchange match its orders?

01:02 13           A.     The matching process, as detailed  
01:02 14      in my earlier answers, references the  
01:03 15      mechanical matching process that may exist on  
01:03 16      a b-y-t-e, byte-to-byte level as well as the  
01:03 17      larger rules and processes that give that  
01:03 18      matching form, that ensure that orders that  
01:03 19      match become a trade that is binding and that  
01:03 20      ensure the enforceability of that bargaining.

01:03 21           Q.     At the byte level, where  
01:03 22      do -- where does the Chicago Mercantile  
01:03 23      Exchange match its orders?

01:03 24                   MS. ZORNBERG: Objection.

01:03 25           A.     Depends on orders. It's hard to

01:03 1 say.

01:03 2 Q. When you say "it depends on  
01:03 3 orders," can you say what it depends on?

01:03 4 A. I mean, the Chicago Mercantile  
01:03 5 Exchange may have computers anywhere. I'm not  
01:03 6 sure.

01:03 7 Q. Globally?

01:03 8 A. Presumably.

01:03 9 Q. When you say "presumably," why  
01:03 10 presumably?

01:03 11 A. I don't know the exact location,  
01:03 12 if it's various operations around the world.

01:04 13 Q. When you say "presumably," do you  
01:04 14 suggest that it's probably the case that they  
01:04 15 have global servers?

01:04 16 MS. BUNTING: Objection.

01:04 17 A. I would be extremely shocked if  
01:04 18 they didn't have -- well, they -- I believe  
01:04 19 they will have servers at locations around the  
01:04 20 globe.

01:04 21 Q. Okay. Where is the Tokyo Stock  
01:04 22 Exchange's order books located?

01:04 23 A. I'm guessing in Tokyo, given my  
01:04 24 earlier answers that the Tokyo Stock Exchange,  
01:04 25 like the Chicago Mercantile Exchange,

01:04 1 encompasses an institutional presence that  
01:04 2 ensures that orders matching are matched,  
01:04 3 become final trades, and are enforced as  
01:04 4 bargains by the Tokyo Stock Exchange.

01:04 5 Q. Where does the Tokyo Stock  
01:04 6 Exchange match its orders?

01:04 7 A. The Tokyo Stock Exchange's  
01:04 8 matching includes the, b-y-t-e, byte-to-byte  
01:04 9 matching that may exist, as well as ensuring  
01:05 10 that the matching process, which is  
01:05 11 mechanical, has actual meaning in accordance  
01:05 12 with the rules and conventions of the central  
01:05 13 limit order book and the governance processes  
01:05 14 of the Chicago -- of the Tokyo Stock Exchange.

01:05 15 Q. Focusing just on the byte-to-byte  
01:05 16 matching process, where does the Tokyo Stock  
01:05 17 Exchange match its orders?

01:05 18 MS. ZORNBERG: Objection.

01:05 19 MS. BUNTING: Objection.

01:05 20 A. I don't know.

01:05 21 Q. Are you offering any opinion in  
01:05 22 this case that XRP is a currency?

01:05 23 A. I am not.

01:05 24 Q. Are you offering any opinion in  
01:05 25 this case as to whether or not XRP has the

01:05 1 attributes of a currency?

01:05 2 A. I am not.

01:05 3 Q. Let's look at the last sentence  
01:06 4 of paragraph 49, please. You write:

01:06 5 "The XRP cryptocurrency, for  
01:06 6 example, has been used as a digital  
01:06 7 settlement asset to overcome the speed  
01:06 8 and costly frictions entailed in making  
01:06 9 cross-border payments between different  
01:06 10 currencies."

01:06 11 Do you see that?

01:06 12 A. I'm sorry, I must be on the wrong  
01:06 13 page.

01:06 14 Q. I'm on page -- I'm starting at  
01:06 15 the bottom of page 26.

01:06 16 A. (Document review.)

01:06 17 Yes.

01:06 18 Q. What is your basis for that  
01:07 19 statement?

01:07 20 A. I've cited a source at source 86  
01:07 21 as an example --

01:07 22 Q. Sorry. Is there any other basis  
01:07 23 for the statement that I just read aloud other  
01:07 24 than the source cited in Note 86?

01:07 25 A. Based off my general background

01:07 1 understanding.

01:07 2 Q. What is that general background  
01:07 3 understanding?

01:07 4 A. That XRP offers a settlement --  
01:07 5 payment settlement asset for international  
01:07 6 payments.

01:07 7 Q. And remind me how you learned  
01:07 8 that.

01:07 9 MS. ZORNBERG: Object to form.

01:07 10 A. It's part of my general research  
01:07 11 into the marketplace.

01:07 12 Q. Prior to your retention in this  
01:07 13 case?

01:07 14 A. Yes.

01:07 15 Q. When you say "the marketplace" in  
01:07 16 that answer, what marketplace?

01:08 17 A. The financial markets.

01:08 18 Q. And how was it that you came  
01:08 19 across XRP's use as a -- strike that.

01:08 20 How is it that you came across  
01:08 21 the use of XRP in making cross-border payments  
01:08 22 in your research into the financial markets?

01:08 23 A. I can't recall exactly. However,  
01:08 24 I imagine -- I think it may have been as part  
01:08 25 of conversations I have with academics,

01:08 1 discussions at conferences, for example, in  
01:08 2 relation to innovations in payments  
01:08 3 technology.

01:08 4 Q. Is cross-border payments  
01:08 5 something that you study?

01:08 6 A. Cross-border payments has been an  
01:08 7 area in which I developed extensive expertise  
01:08 8 and practice and as part of my overall  
01:08 9 research.

01:08 10 Q. Are you aware of any disruptions  
01:08 11 or halts on the XRP ledger?

01:08 12 A. None specifically at present.

01:09 13 Q. Let's look at paragraph 59,  
01:09 14 please. That is on page 32. The third  
01:09 15 sentence in that paragraph is:

01:09 16 "Many cryptocurrency exchanges,  
01:09 17 including several on which I understand  
18 XRP to have been transacted,  
19 contractually stipulate  
20 rules-of-the-road for order submission,  
21 matching, trade execution, and  
22 settlement that are consistent with this  
23 understanding."

01:09 24 And I believe "this  
01:09 25 understanding" refers to the previous sentence

01:09 1 where you say:

01:09 2 "Market participants understand  
01:09 3 that their trades will be executed and  
01:09 4 then immediately settled within the  
01:09 5 confines of the exchange."

01:10 6 Is that correct?

01:10 7 A. Are you on page 32?

01:10 8 Q. I am.

01:10 9 A. Okay.

01:10 10 Q. Paragraph 59.

01:10 11 MS. ZORNBERG: Object to form.  
01:10 12 Are you just asking her if that's  
01:10 13 correctly -- you read it correctly?

01:10 14 MR. SYLVESTER: No. I'm asking  
01:10 15 whether or not the phrase "this  
01:10 16 understanding" referenced the  
01:10 17 understanding of market participants  
01:10 18 described in the previous sentence.

01:11 19 A. (Document review.)

01:11 20 I'm sorry. What's the question?

01:11 21 Q. Do you see the reference in the  
01:11 22 third sentence of paragraph 59, at the end,  
01:11 23 "this understanding"?

01:11 24 A. Third sentence of paragraph 59.  
01:11 25 Are you referring to "market participants"



01:11 1 understand that their trades will be executed  
01:11 2 and then immediately settled"?

01:11 3 Q. That's what I'm asking, is  
01:11 4 whether or not this phrase "this  
01:11 5 understanding" used in the third sentence is  
01:11 6 referring back to your description of market  
01:11 7 participants' understanding in the second  
01:11 8 sentence of the paragraph.

01:11 9 A. I believe it's referencing market  
01:11 10 participants' understanding that their trades  
01:11 11 will be executed and then settled within the  
01:11 12 exchange.

01:12 13 Q. Okay. So you say that many  
01:12 14 cryptocurrency exchanges, including several on  
01:12 15 which you understand XRP to have been  
01:12 16 contracted -- transacted, have contractual  
01:12 17 rules of the road that reflects the  
01:12 18 understanding that trades will be executed and  
01:12 19 then immediately settled within the confines  
01:12 20 of the exchange. Is that right?

01:12 21 MS. ZORNBERG: Object to form.

01:12 22 You can answer.

01:12 23 A. Right.

01:12 24 Q. Let me ask a better question.

01:12 25 You say many -- the third

01:12 1 sentence seems to be about the  
01:12 2 rules of the road for many cryptocurrency  
01:12 3 exchanges.

01:12 4 I'm trying to get at: What is it  
01:12 5 that they contain?

01:12 6 A. Okay.

01:12 7 Q. In your third sentence, what are  
01:12 8 you describing?

01:12 9 A. That's a broad question. The  
01:12 10 rules of the road for cryptocurrency exchanges  
01:12 11 are set out in the terms of service that are  
01:13 12 discussed in this report.

01:13 13 I reviewed 24 of them for  
01:13 14 exchanges set out in Table A, and many of  
01:13 15 those terms of service set out the processes  
01:13 16 that exchanges use for order submission, what  
01:13 17 makes orders binding, for dispute resolution,  
01:13 18 for ensuring that users comply with a certain  
01:13 19 standard of behavior when they're on the  
01:13 20 exchange, as well as rules with respect to how  
01:13 21 they maintain their solvency on the exchange,  
01:13 22 for example.

01:13 23 Q. Are there any rules of the road  
01:13 24 that you reviewed that do not include any of  
01:13 25 the information you just described?

01:14 1 MS. ZORNBERG: Object to form.

01:14 2 A. There may be a couple of -- there  
01:14 3 may have been -- there were, rather, I should  
01:14 4 say, some terms of service that were much more  
01:14 5 basic than others.

01:14 6 Q. When you say they were "much more  
01:14 7 basic," does that mean they did not include  
01:14 8 the information that you just described?

01:14 9 A. They may have included some of  
01:14 10 it, but the detail was varied in the depth  
01:14 11 depending on the terms of service.

01:14 12 Q. Were there any rules of the road  
01:14 13 that you read that did not set forth what  
01:14 14 makes an order binding?

01:14 15 MS. ZORNBERG: Object to form.

01:14 16 A. You know, I think there may have  
01:14 17 been one user agreement or a couple user  
01:14 18 agreements that perhaps weren't as clear on  
01:15 19 that. But in general, the user agreements  
01:15 20 were very categorical about the fact that  
01:15 21 orders become binding when they are matched by  
01:15 22 the exchange, partially-filled orders become  
01:15 23 binding to the part that is filled when  
01:15 24 matched by the exchange.

01:15 25 Q. Which were those one or two that

01:15 1 you just described?

01:15 2 A. I can't exactly recall. I'd have  
01:15 3 to go through the user agreements to fish them  
01:15 4 out.

01:15 5 Q. Is there anywhere in your report  
01:15 6 that reflects that those one or two do not set  
01:15 7 forth information about what makes orders  
01:15 8 binding on those exchanges?

01:15 9 A. In the report, I focus on the  
01:15 10 general. I did -- may -- I don't think I  
01:15 11 noted the one or two that did not include that  
01:15 12 information specifically.

01:15 13 Q. Okay. The third to last sentence  
01:16 14 in paragraph 59 says:

01:16 15 "As with traditional exchanges  
01:16 16 that enter into contracts with users,  
01:16 17 thereby creating a unique trading  
01:16 18 environment, cryptocurrency exchanges  
01:16 19 tend to similarly establish a core set  
01:16 20 of rules and standards for their  
01:16 21 particular market."

01:16 22 Do you see that?

01:16 23 A. I'm so sorry, which paragraph?

01:16 24 Q. 59 again.

01:16 25 A. Sorry.

01:16 1 Q. It's okay.

01:16 2 A. (Document review.)

01:16 3 Yes.

01:16 4 Q. Are there any exchange rules that  
01:16 5 you reviewed that do not set forth the core  
01:16 6 set of rules and standards that you describe  
01:16 7 in that sentence?

01:16 8 MS. ZORNBERG: Objection.

01:16 9 A. Again, referencing back to my  
01:16 10 previous answer, there were some  
01:17 11 exchange -- there were a couple of exchanges,  
01:17 12 some user agreements that were much more basic  
01:17 13 than others. Yeah.

01:17 14 Q. For the exchanges with user  
01:17 15 agreements that were much more basic than  
01:17 16 others, as you describe it, was XRP traded on  
01:17 17 those exchanges?

01:17 18 MS. ZORNBERG: Objection to form.

01:17 19 A. I believe so. I can't say for  
01:17 20 sure.

01:17 21 Q. Is it your understanding that all  
01:17 22 of the -- strike that.

01:17 23 Is it your understanding that XRP  
01:17 24 was traded on all the exchanges that are  
01:17 25 listed in your Table A?

01:17 1 A. I believe so.

01:17 2 Q. Did you confirm that in any way  
01:17 3 before putting Table A in your report?

01:17 4 A. I think I did -- I did -- I think  
01:17 5 I did confirm it.

01:17 6 Q. How did you do that?

01:17 7 A. Discuss broadly with counsel.

01:18 8 Q. And did you personally review all  
01:18 9 of the user agreements for each of the  
01:18 10 exchanges on which XRP traded?

01:18 11 A. I did not review -- with respect  
01:18 12 to the exchanges listed in Table A, I reviewed  
01:18 13 all of the user agreements minus that of  
01:18 14 Bitlish.

01:18 15 Q. Why didn't you review Bitlish?

01:18 16 A. It was not available.

01:18 17 Q. Is it your understanding that  
01:18 18 Table A contains all of the cryptocurrency  
01:18 19 exchanges on which XRP has ever been traded?

01:18 20 A. I have no idea. Sorry. I  
01:18 21 don't --

01:18 22 Q. Let's go to paragraph 63 on the  
01:18 23 next page, page 33.

01:18 24 A. Yup.

01:18 25 Q. The first sentence says:

01:18 1 "Based on my review of their user  
01:19 2 agreements, exchanges mostly use a  
01:19 3 trading model that closely resembles a  
01:19 4 central order book that matches buy and  
01:19 5 sell orders in accordance with a set  
01:19 6 matching algorithm."

01:19 7 Do you see that?

01:19 8 A. I do.

01:19 9 Q. I'm focusing just in on the word  
01:19 10 "mostly." Which are the exchanges that do not  
01:19 11 use a trading model that closely resembles a  
01:19 12 central order book, as you describe in  
01:19 13 paragraph 63?

01:19 14 A. The reason I use the word  
01:19 15 "mostly" there is because, as I said, some  
01:19 16 user agreements are much more basic and don't  
01:19 17 provide a detail description of their order  
01:19 18 matching system.

01:19 19 I will say that the central limit  
01:19 20 order book is the dominant form that has  
01:19 21 appeared in the user agreements.

01:19 22 Q. Of the user agreements that you  
01:19 23 reviewed, how many of them don't provide that  
01:20 24 detailed description of their order matching  
01:20 25 system?

01:20 1 A. I would have to go through them  
01:20 2 all to fish out the ones that are more basic  
01:20 3 and don't stipulate exactly what their order  
01:20 4 matching mechanisms look like.

01:20 5 Q. For the ones that don't stipulate  
01:20 6 exactly what their order matching mechanisms  
01:20 7 look like, do you know how those exchanges  
01:20 8 match their orders?

01:20 9 MS. ZORNBERG: Object to form.

01:20 10 A. I do not, no.

01:20 11 Q. The next sentence says -- of  
01:20 12 paragraph 63 -- says:

01:20 13 "Offers to buy or sell are made  
01:20 14 on the exchange and appear on the  
01:20 15 central order book within the confines  
01:20 16 of the exchange."

01:20 17 Do you see that?

01:20 18 A. That's right.

01:20 19 Q. Can you tell me what you mean by  
01:20 20 the phrase "within the confines of the  
01:21 21 exchange"?

01:21 22 A. What I mean by that phrase is  
01:21 23 within the order submission ecosystem of that  
01:21 24 exchange that sets up an order submission  
01:21 25 system, order matching system, and then the



01:21 1 clearing and settlement system for regulating  
01:21 2 the accounts of the different users.

01:21 3 Q. Is the order submission ecosystem  
01:21 4 consistent -- strike that.

01:21 5 Does the order submission  
01:21 6 ecosystem consist of an order submission  
01:21 7 system, an order matching system, and a  
01:21 8 clearing and settlement system?

01:21 9 MS. ZORNBERG: Object to form.

01:21 10 A. Going back to my earlier answers,  
01:21 11 the order matching system, the central limit  
01:21 12 order book, consists of the order matching,  
01:21 13 the binding quality that comes about when  
01:21 14 orders match, the rules and processes that  
01:21 15 ensure that binding bargain is then recognized  
01:22 16 and enforced by the exchange.

01:22 17 Q. Is what you just described in  
01:22 18 your answer what you would consider to be the  
01:22 19 order submission ecosystem?

01:22 20 A. Broadly, yes.

01:22 21 Q. Okay. Let's go to paragraph 64,  
01:22 22 the first sentence. It says:

01:22 23 "Orders, once matched, then  
01:22 24 become automatically binding in the  
01:22 25 exchange's trading system."

01:22 1 Do you see that?

01:22 2 A. I do, yes.

01:22 3 Q. Is that always true?

01:22 4 MS. ZORNBERG: Object to form.

01:23 5 A. In general, it is by far, by far,  
01:23 6 the prevailing convention across exchanges,  
01:23 7 traditional and cryptocurrency exchanges, that  
01:23 8 orders, once matched, immediately become  
01:23 9 binding in the exchange's trading system.

01:23 10 Q. Focusing just on cryptocurrency  
01:23 11 exchanges, what are the exceptions?

01:23 12 A. Going back to my earlier answer,  
01:23 13 there were some terms of service that were  
01:23 14 more basic, and so I cannot give a conclusive  
01:23 15 answer with respect to those exchanges.

01:24 16 Q. The first complete sentence of  
01:24 17 paragraph 64 that appears on page 34 begins:

01:24 18 "The terms of service of most of  
01:24 19 the exchanges that I reviewed refer to  
01:24 20 specific in-house order matching systems  
01:24 21 that result in orders becoming binding  
01:24 22 as soon as a sell and buy order match."

01:24 23 Do you see that?

01:24 24 A. I do, yes.

01:24 25 Q. Were there any terms of service

01:24 1 that you read where that statement was not  
01:24 2 true?

01:24 3 A. Which part of it was not true?

01:24 4 Q. Did you review any terms of  
01:24 5 service where the in-house order matching  
01:24 6 systems did not result in orders becoming  
01:24 7 binding as soon as a sell and buy order  
01:24 8 matched?

01:24 9 A. You know, as I sit here today and  
01:25 10 think back to the terms of service I reviewed,  
01:25 11 where they mention order submission, whenever  
01:25 12 they do mention it, that mention states that  
01:25 13 whenever orders match, they become binding.

01:25 14 Q. Near the end of paragraph 64,  
01:25 15 second to last sentence says:

01:25 16 "Once offers entering the  
01:25 17 exchange are matched by the exchange and  
01:25 18 become final, reversal can occur only on  
01:25 19 narrow grounds (as described below) and  
01:25 20 per my review of several user  
01:25 21 agreements, only at the discretion of  
01:25 22 the exchange."

01:25 23 Do you see that?

01:25 24 A. I do, yes.

01:25 25 Q. Which are the "several user

01:25 1 agreements" you're referring to?

01:25 2 A. I can give you some examples.

01:25 3 Q. Sure. Go ahead.

01:25 4 A. So, for example, when one looks  
01:26 5 at the Coinbase exchange, Coinbase Singapore  
01:26 6 sets out in its terms of service that trades  
01:26 7 may be reversed by the exchange only on  
01:26 8 extremely narrow grounds, like a clearly  
01:26 9 erroneous trade.

01:26 10 Similarly, if one looks at  
01:26 11 BitMax, as I recall, trades may be reversed  
01:26 12 for clearly erroneous transactions that take  
01:26 13 place on an exchange but, again, only at the  
01:26 14 absolute discretion of the exchange itself.

01:26 15 Q. Were there any user agreements  
01:26 16 you reviewed where reversal was not only at  
01:26 17 the discretion of the exchange?

01:26 18 A. There was only one where the user  
01:26 19 could ask for help in helping reverse a trade,  
01:27 20 but ultimately it would be up to the exchange,  
01:27 21 as far as I can recall, to ensure that  
01:27 22 reversal would happen.

01:27 23 That one exception, I cannot  
01:27 24 remember exactly which one that was, had the  
01:27 25 exchange offering to work with the market

01:27 1 participants.

01:27 2                   However, it is a very fundamental  
01:27 3 principle in exchange design that trades are  
01:27 4 final as soon as they become binding on  
01:27 5 exchanges and that where reversals happen,  
01:27 6 these happen on extremely narrow grounds and  
01:27 7 only at the discretion of the exchange itself.

01:27 8           Q.     When you say "it's a principle of  
01:27 9 exchange design," do you mean traditional  
01:27 10 exchanges or crypto exchanges or both?

01:27 11           A.     Let me start at the broadest  
01:27 12 level. It is a fundamental principle of  
01:27 13 exchange design that orders, when they match,  
01:28 14 become final and binding on the exchange.

01:28 15                   That is critical, as detailed in  
01:28 16 this report, because without that finality,  
01:28 17 market participants cannot rely on their  
01:28 18 bargain and cannot then take on any kind of  
01:28 19 reliance on that bargain.

01:28 20                   And that principle is applied by  
01:28 21 traditional exchanges, as cited here in this  
01:28 22 report, as well as by cryptocurrency  
01:28 23 exchanges, for the most part, as I detail in  
01:28 24 this report.

01:28 25           Q.     Did you review all of the user

01:28 1 agreements that are cited in your Appendix B?

01:28 2 MS. ZORNBERG: Objection. Asked  
01:28 3 and answered.

01:28 4 You can answer again.

01:28 5 A. I reviewed all of the user  
01:28 6 agreements for Table A exchanges minus  
01:28 7 Bitlish.

01:29 8 Q. Let's turn to the first sentence  
01:29 9 of paragraph 65 on page 34. You write:

01:29 10 "Per many of the terms of service  
01:29 11 that I reviewed, cryptocurrency  
01:29 12 exchanges appear to use the common order  
01:29 13 matching conventions seen in traditional  
01:29 14 financial exchanges to create binding  
01:29 15 finality for offers entering an exchange  
01:29 16 once they match on the exchange in  
01:29 17 accordance with exchange rules."

01:29 18 Do you see that?

01:29 19 A. I do, yes.

01:29 20 Q. Can you tell me what you mean by  
01:29 21 the phrase "appear to use"?

01:29 22 A. Yes, it's the fact that I'm  
01:29 23 looking at the user agreements, and based off  
01:29 24 the user agreements, that's what I understand  
01:29 25 those order matching conventions to be.

01:30 1 Q. The first sentence of paragraph  
01:30 2 66 on page 35. Do you see that? It says:  
01:30 3 "This order matching process and  
01:30 4 the finality of trades is further  
01:30 5 corroborated by industry participants'  
01:30 6 understanding of how trades are executed  
01:30 7 on cryptocurrency exchanges."

01:30 8 Do you see that?

01:30 9 A. I do, yes.

01:30 10 Q. What's your basis for your  
01:30 11 knowledge of what industry participants'  
01:30 12 understanding is of how trades are executed on  
01:30 13 cryptocurrency exchanges?

01:30 14 A. For example, as stated in the  
01:30 15 report, I relied on the testimony of  
01:30 16 Mr. Cristian Gil for his understanding as a  
01:30 17 longtime market participant in the  
01:30 18 cryptocurrency industry.

01:30 19 Q. Is there any other basis for your  
01:30 20 knowledge other than Mr. Gil's testimony?

01:30 21 A. The user agreements that are  
01:30 22 being signed by the customers of  
01:31 23 cryptocurrency exchanges presumably would  
01:31 24 match and create an understanding on their  
01:31 25 part as to what they expect the exchange to

01:31 1 deliver for them.

01:31 2 In addition, cryptocurrency  
01:31 3 exchanges, as detailed in this report, are  
01:31 4 conducting very high trade volumes. Without  
01:31 5 those trade volumes having -- without trades  
01:31 6 being binding, those volumes would be -- users  
01:31 7 would not be attracted to those exchanges if  
01:31 8 they did not -- if they could not rely on the  
01:31 9 finality of their trades.

01:31 10 Q. Do you have any basis to believe  
01:31 11 that traders on cryptocurrency exchanges  
01:31 12 actually read the user agreements of those  
01:31 13 exchanges?

01:31 14 MS. ZORNBERG: Object to form.

01:31 15 A. I'm sorry. I don't really  
01:31 16 understand the question.

01:31 17 Q. I understood your last answer to  
01:31 18 be based, in part, on traders' review of  
01:32 19 cryptocurrency exchanges' user agreements.

01:32 20 So my question is whether or not  
01:32 21 you have any -- strike that.

01:32 22 Do you have any basis to believe  
01:32 23 that traders on cryptocurrency exchanges  
01:32 24 actually read those user agreements of those  
01:32 25 exchanges?



01:32 1           A.     I mean, I can't say for sure. I  
01:32 2     can't speak to every trader everywhere.  
01:32 3     However, the user agreements certainly  
01:32 4     stipulate some very clear requirements that  
01:32 5     are demanded of users.

01:32 6           For example, in many of the user  
01:32 7     agreements I reviewed here, it demands that a  
01:32 8     user get a wallet that is particular to that  
01:32 9     exchange, that that user then fill that wallet  
01:32 10    with a certain amount of value.

01:32 11           So I would imagine that user  
01:32 12    agreements would have to -- users would have  
01:32 13    to reflect and think and read that agreement  
01:32 14    in order to know what to do when they -- when  
01:33 15    they naturalize themselves on a cryptocurrency  
01:33 16    exchange.

01:33 17           Q.     Do you have any basis to believe  
01:33 18    that a trader on a cryptocurrency exchange  
01:33 19    would read the entire user agreement of that  
01:33 20    exchange?

01:33 21           MS. ZORNBERG: Objection.

01:33 22           A.     I really can't speak to every  
01:33 23    trader everywhere. It would be certainly in  
01:33 24    the trader's interest to read those user  
01:33 25    agreements because it sets out the obligations

01:33 1 of traders.

01:33 2 In addition, the user agreements  
01:33 3 also sets out the kind of conduct that is  
01:33 4 expected of traders and the punishment that  
01:33 5 may arise if that conduct is not observed.

01:33 6 Moreover, these user agreements  
01:33 7 are, for the most part, clearly written  
01:33 8 generally. They're not particularly long  
01:33 9 generally.

01:34 10 And so they do appear to be  
01:34 11 amenable to being easily read by folks using  
01:34 12 the exchange.

01:34 13 Q. Are you expressing an opinion  
01:34 14 here that traders on cryptocurrency exchanges  
01:34 15 actually do read those exchanges' user  
01:34 16 agreements?

01:34 17 A. I'm not expressing that opinion.

01:34 18 Q. Okay. Paragraph 68 on page 37.  
01:34 19 Near the bottom of the paragraph, you  
01:34 20 reference trading on Bittrex.

01:34 21 Do you see that?

01:34 22 A. Which part? I'm sorry.

01:34 23 Q. Say, the bottom half of paragraph  
01:34 24 68 discusses Bittrex?

01:34 25 A. Okay.

01:34 1 Q. And you reference that Bittrex  
01:35 2 offers customers both on-chain and off-chain  
01:35 3 settlement options. Is that correct?

01:35 4 A. Yes.

01:35 5 Q. Okay. Was XRP traded on Bittrex?

01:35 6 A. I believe so.

01:35 7 Q. Do you know whether any of the  
01:35 8 XRP traded on Bittrex was traded using  
01:35 9 on-chain settlement?

01:35 10 A. I don't know.

01:35 11 Q. Turning to page -- the next page,  
01:35 12 page 38 and paragraph 69. The first sentence  
01:35 13 is:

01:35 14 "The fact that transactions are  
01:35 15 executed instantaneously and are final  
01:35 16 following matching is supported by the  
01:35 17 understanding of market participants."

01:35 18 Do you see that?

01:35 19 A. I do.

01:35 20 Q. And right after that sentence,  
01:35 21 you again cite Mr. Gil's testimony.

01:35 22 Do you see that?

01:35 23 A. I do.

01:35 24 Q. Do you have any basis for your  
01:35 25 conclusion about the understanding of market

01:35 1 participants other than Mr. Gil's testimony?

01:36 2 A. Going back to my earlier answer,  
01:36 3 it is a core and fundamental principle of  
01:36 4 exchange design that transactions become final  
01:36 5 as soon as they're matched. Without that,  
01:36 6 transaction functions would be extremely  
01:36 7 diminished in quality.

01:36 8 Q. And focusing just on market  
01:36 9 participants' understanding of that principle,  
01:36 10 do you have any basis, other than Mr. Gil's  
01:36 11 testimony, for your belief that market  
01:36 12 participants understand that?

01:36 13 MS. ZORNBERG: Objection. Asked  
01:36 14 and answered.

01:36 15 You can answer again.

01:36 16 A. Again, it is a core principle of  
01:36 17 exchange design that transactions become final  
01:36 18 once they're matched and become binding.

01:36 19 As noted earlier, that is set out  
01:36 20 in many user agreements and reflected in the  
01:37 21 fact that users are assenting to these user  
01:37 22 agreements.

01:37 23 Q. I'm sorry, I didn't hear that  
01:37 24 word. Users are what?

01:37 25 A. Assenting.

01:37 1 Q. When you say "assenting," can you  
01:37 2 tell me what --

01:37 3 A. Agreeing to.

01:37 4 Q. How do users reflect their  
01:37 5 agreement -- their -- with the user  
01:37 6 agreements?

01:37 7 A. I'm sorry?

01:37 8 Q. How, if at all, do users --  
01:37 9 strike that.

01:37 10 How, if at all, do traders on  
01:37 11 cryptocurrency exchanges reflect their  
01:37 12 agreement with user agreements?

01:37 13 MS. ZORNBERG: Object to form.

01:37 14 A. It's my understanding that a user  
01:37 15 agreement has to be completed by a user before  
01:37 16 they're able to access exchange services on a  
01:37 17 cryptocurrency exchange.

01:37 18 Q. Did you read the entirety of  
01:37 19 Mr. Gil's deposition testimony?

01:37 20 A. I did.

01:37 21 Q. Did Mr. Gil speak to the physical  
01:37 22 location of matching agents on cryptocurrency  
01:38 23 exchanges?

01:38 24 MS. ZORNBERG: Objection.

01:38 25 A. I can't recall. I'm sorry.

01:38 1 MR. SYLVESTER: I think this is  
01:38 2 probably a good time for a break if that  
01:38 3 works for you.

01:38 4 MS. ZORNBERG: Of course.

01:38 5 MR. SYLVESTER: Okay. Let's go  
01:38 6 off the record.

01:38 7 THE VIDEOGRAPHER: The time now  
01:38 8 is 1:38 p.m. This concludes Media 4.  
01:38 9 Off the record.

01:38 10 (Lunch recess taken from  
02:27 11 1:38 p.m. to 2:27 p.m.)

12 (Continued on the next page.)

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A F T E R N O O N        S E S S I O N

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(Time noted: 2:27 p.m.)

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THE VIDEOGRAPHER: The time now  
is 2:27. This begins Media 5. On the  
record.

Y E S H A    Y A D A V, resumed and testified  
further as follows:

CONTINUED EXAMINATION

BY MR. SYLVESTER:

Q.        Professor, can we look at  
paragraph 71 of your report on page 39. The  
first sentence of paragraph 71 says:

"I have been asked to provide an  
opinion on whether offers to buy and  
sell cryptocurrencies like XRP, trading  
on an exchange, take place on the  
exchange itself or elsewhere."

My first question is: Is your  
opinion limited to offers to buy and sell XRP  
on an exchange?

MS. ZORNBERG: Objection. Asked  
and answered.

02:28 1 You can answer.

02:28 2 A. My opinion is limited to offers  
02:28 3 to buy and sell cryptocurrencies trading on an  
02:28 4 exchange.

02:28 5 Q. The last portion of that sentence  
02:28 6 says "take place on the exchange itself or  
02:29 7 elsewhere."

02:29 8 Do you see that?

02:29 9 A. I do.

02:29 10 Q. When you say "elsewhere," what do  
02:29 11 you mean by that? Where else could offers or  
02:29 12 trades on an exchange happen?

02:29 13 MS. ZORNBERG: Object to form.

02:29 14 A. Perhaps they might happen off  
02:29 15 exchange.

02:29 16 Q. When you say "off exchange," can  
02:29 17 you explain what you mean by that?

02:29 18 A. It can reference any number of  
02:29 19 different market structure possibilities.

02:29 20 Q. Can you give me an example?

02:29 21 A. For example, over-the-counter  
02:29 22 bilateral trades happen off exchange.

02:29 23 Q. Okay. The next sentence says:  
02:29 24 "Based on my research and  
02:29 25 experience, I conclude that offers to



02:30 1 buy and sell cryptocurrencies take place  
02:30 2 on an exchange and become binding trades  
02:30 3 as soon as they are matched within the  
02:30 4 books and records of the exchange in  
02:30 5 accordance with the rules of the  
02:30 6 exchange."

02:30 7 Do you see that?

02:30 8 A. Yes.

02:30 9 Q. On what research is that  
02:30 10 conclusion based?

02:30 11 A. That is based on my general body  
02:30 12 of research, my work experience in  
02:30 13 professional practice, as well as specific  
02:30 14 research material that I reference in this  
02:30 15 report.

02:30 16 Q. Okay. Is there a distinction  
02:30 17 between research and experience in that  
02:30 18 sentence?

02:30 19 A. For example, I have had  
02:30 20 professional experience during which time I  
02:31 21 was involved, as part of legal practice, in  
02:31 22 advising on matters relating to exchanges,  
02:31 23 clearinghouses, and other market  
02:31 24 infrastructure providers.

02:31 25 Q. Is any of the experience that you

02:31 1 just discussed related to cryptocurrency  
02:31 2 exchanges?

02:31 3 A. That experience happened in  
02:31 4 the -- at a time when cryptocurrency exchanges  
02:31 5 weren't around.

02:31 6 Q. Do you have any professional  
02:31 7 experience relevant to -- strike that.

02:31 8 Do you have any professional  
02:31 9 experience related to cryptocurrency exchanges  
02:31 10 that's encompassed within your reference to  
02:31 11 experience in paragraph 71?

02:31 12 A. So the --

02:31 13 MS. ZORNBERG: Object to form.

02:31 14 You can answer.

02:31 15 THE WITNESS: Sorry.

02:31 16 A. So the experience that I have in  
02:31 17 professional practice included frequently  
02:31 18 advising on and studying matters relating to  
02:31 19 exchange design, transactions, payment  
02:32 20 finality, and so forth.

02:32 21 In addition, the work that I was  
02:32 22 doing as part of practice, as detailed in the  
02:32 23 CV, also looked at payment services providers  
02:32 24 and innovation in payment services.

02:32 25 Work in relation to

02:32 1 cryptocurrencies and cryptocurrency exchanges  
02:32 2 is a very natural extension of the work that I  
02:32 3 did in professional practice. That was  
02:32 4 examining issues of exchange design, order  
02:32 5 submission, settlement, finality, and risk  
02:32 6 management.

02:32 7 As noted in this report, many  
02:32 8 practices that are deployed by cryptocurrency  
02:32 9 exchanges borrow heavily from existing  
02:32 10 paradigms in traditional market design.

02:32 11 And that work I did extensively  
02:32 12 throughout practice in my legal practice as  
02:32 13 well as studied it as part of my research  
02:32 14 thoroughly over this last decade.

02:32 15 Q. Just focusing on your legal  
02:33 16 practice, did any of that touch on matters  
02:33 17 related to cryptocurrency exchanges?

02:33 18 MS. ZORNBERG: Object to form.

02:33 19 A. That was at the time prior to  
02:33 20 when cryptocurrencies were around, if one  
02:33 21 takes Satoshi Nakamoto's 2008 paper as  
02:33 22 potentially an origin point.

02:33 23 However, the experience that I  
02:33 24 gleaned as part of that professional practice  
02:33 25 provides a very natural foundation for

02:33 1 studying and analyzing the operations of  
02:33 2 cryptocurrency exchanges.

02:33 3 Q. I think I follow what you're  
02:33 4 saying, but I just want to make sure I  
02:33 5 understand.

02:33 6 So none of your professional  
02:33 7 experience had to do with cryptocurrency  
02:33 8 exchanges, but it -- your professional  
02:33 9 experience nevertheless informs your view in  
02:33 10 the report?

02:33 11 A. It --

02:33 12 MS. ZORNBERG: Object to --  
02:33 13 object to form.

02:33 14 Q. Is that fair?

02:33 15 A. My professional experience  
02:33 16 informs my research and understanding of  
02:33 17 cryptocurrency exchanges.

02:33 18 In addition, I would highlight my  
02:34 19 policy experience that I've engaged in over  
02:34 20 the last -- over a period of years, for  
02:34 21 example, in relation to work with the CFTC,  
02:34 22 where there has been discussion and  
02:34 23 examination of various cryptocurrency-related  
02:34 24 technologies.

02:34 25 Q. Other than your policy work, what

02:34 1 professional experience do you have strictly  
02:34 2 related to cryptocurrency exchanges?

02:34 3 MS. ZORNBERG: I have a standing  
02:34 4 objection to the word "professional,"  
02:34 5 because I don't know if you mean law  
02:34 6 firm or something broader.

02:34 7 Q. Do you have an understanding of  
02:34 8 what I mean by "professional experience"?

02:34 9 A. My teaching and research  
02:34 10 experience, if that -- I mean, I consider that  
02:34 11 to be my professional experience as well.

02:34 12 And in that regard, in addition  
02:34 13 to my practice work at Clifford Chance, which  
02:34 14 provided a very granular understanding of  
02:34 15 exchange design, I was advising very  
02:35 16 frequently various market participants in  
02:35 17 relation to issues pertaining to exchanges,  
02:35 18 clearinghouses, finality, risk management, on  
02:35 19 a cross-border basis.

02:35 20 I worked extensively, as noted  
02:35 21 earlier, with the European Payments Council in  
02:35 22 relation to developing rules and processes for  
02:35 23 payment services on a Pan-European level.  
02:35 24 Those -- that scheme, that governance  
02:35 25 structure is still there today.

02:35 1 My professional experience in the  
02:35 2 academic context includes extensive teaching.  
02:35 3 I have taught -- I have taught  
02:35 4 cryptocurrencies as part of my courses in  
02:35 5 relation to financial markets innovation.  
02:35 6 Currently I'm teaching a seminar on  
02:35 7 cryptocurrencies that is focused exclusively  
02:35 8 on cryptocurrencies.

02:35 9 In addition, of course, I'm  
02:35 10 researching cryptocurrencies extensively as  
02:35 11 part of my research agenda.

02:35 12 Q. When you were in private  
02:35 13 practice, were any of your clients  
02:35 14 cryptocurrency exchanges?

02:35 15 A. When I was in private practice?  
02:36 16 At what time? When were you -- which practice  
02:36 17 are you referring to?

02:36 18 Q. It doesn't matter for the scope  
02:36 19 of my question. Any time you were in private  
02:36 20 practice, were any of your clients  
02:36 21 cryptocurrency exchanges?

02:36 22 MS. ZORNBERG: Object to form.

02:36 23 A. So when I was in private practice  
02:36 24 in Clifford Chance in London, it would have  
02:36 25 been impossible to have clients relating to

02:36 1 cryptocurrency exchanges, as that technology  
02:36 2 did not exist as I understand it.

02:36 3                   However, I did have, as noted,  
02:36 4 plenty of clients that related to various  
02:36 5 aspects of different exchange functions.  
02:36 6 So -- and including clearing and settlement  
02:36 7 systems, and obviously in relation to payment  
02:36 8 systems as well.

02:36 9                   Q.     Okay. But you've never had a  
02:36 10 client that actually was a cryptocurrency  
02:36 11 exchange?

02:36 12                   MS. ZORNBERG: Objection. Asked  
02:36 13 and answered.

02:36 14                   A.     No, I haven't.

02:37 15                   Q.     Okay. The last sentence of  
02:37 16 paragraph 71 says:

02:37 17                   "Therefore, both offers and  
02:37 18 trades occur on the exchange and at the  
02:37 19 geographic location of the exchange."

02:37 20                   Do you see that?

02:37 21                   A.     I do.

02:37 22                   Q.     Okay. What do you mean by "the  
02:37 23 geographic location of the exchange"?

02:37 24                   A.     I mean where the exchange is  
02:37 25 located.

02:37 1 Q. How does one make the  
02:37 2 determination where an exchange is located?

02:37 3 A. In my opinion, I set out four  
02:37 4 indicia that I considered to be the core  
02:37 5 indicia for determining the location of a  
02:37 6 cryptocurrency exchange.

02:37 7 Q. Did you create those core  
02:37 8 indicia?

02:37 9 A. I did.

02:38 10 Q. Do you believe that those core  
02:38 11 indicia are generally accepted in your field  
02:38 12 as authoritative on determining the location  
02:38 13 of a cryptocurrency exchange?

02:38 14 A. This is a new issue. The  
02:38 15 criteria that I set out reflects what I  
02:38 16 consider to be an informed understanding of  
02:38 17 what I would imagine researchers in my field  
02:38 18 would consider to be eminently reasonable and  
02:38 19 correct as a way of identifying four core  
02:38 20 criteria that would be dispositive in  
02:38 21 determining the location of a cryptocurrency  
02:38 22 exchange.

02:38 23 Q. Do you know one way or another  
02:38 24 whether researchers in your field do consider  
02:38 25 your criteria to be eminently reasonable and



02:38 1 correct?

02:38 2 MS. ZORNBERG: Object to form.

02:38 3 A. I've put forward these indicia in  
02:38 4 this opinion. It's a new area. I have made  
02:39 5 an attempt to put out four core indicia that I  
02:39 6 consider to be very logical, very reasonable,  
02:39 7 well-founded, that would govern and provide a  
02:39 8 credible understanding of where an exchange is  
02:39 9 located.

02:39 10 This is a new issue. I believe  
02:39 11 if researchers in my field were to have a look  
02:39 12 and consider this opinion, I imagine that they  
02:39 13 would be very supportive of the reasoning and  
02:39 14 the logic that is put forward in this opinion  
02:39 15 with respect to these indicia.

02:39 16 Q. Did you consult with any of the  
02:39 17 researchers in your field when forming your  
02:39 18 indicia?

02:39 19 A. I did not. However, I have  
02:39 20 relied on my extensive professional  
02:39 21 experience, including legal practice, legal  
02:39 22 research, and teaching as well in the area of  
02:39 23 cross-border payments and cross-border  
02:39 24 banking, to determine what I consider to be  
02:39 25 four core indicia for determining the location

02:39 1 of a cryptocurrency exchange.

02:39 2 Q. To your knowledge, are any of the  
02:40 3 researchers in your field aware of the four  
02:40 4 indicia that you've selected to determine the  
02:40 5 location of a cryptocurrency exchange?

02:40 6 MS. ZORNBERG: Object to form.

02:40 7 A. I do not believe so. This  
02:40 8 opinion is confidential as far as I  
02:40 9 understand.

02:40 10 Q. Have you ever read any academic  
02:40 11 literature setting forth the four criteria  
02:40 12 that you selected for determining the location  
02:40 13 of a cryptocurrency exchange?

02:40 14 A. I have not but this is a new  
02:40 15 issue. And my opinion provides an attempt to  
02:40 16 set out four core indicia that I feel  
02:40 17 is -- that I feel are logical, reasonable, and  
02:40 18 well founded.

02:40 19 Q. Is it fair to say that because  
02:40 20 this issue is so new, your four indicia could  
02:40 21 not possibly be generally accepted in your  
02:40 22 field yet?

02:40 23 MS. ZORNBERG: Object to form.

02:40 24 A. I disagree. I feel that the  
02:40 25 indicia that I provided here is based on

02:40 1 extensive professional experience that comes  
02:40 2 from a very close interaction with the  
02:40 3 exchange industry, advising on issues with  
02:41 4 respect to the cross-border migration of  
02:41 5 value, capital, cash securities, assets  
02:41 6 elsewhere, and dealing with where the location  
02:41 7 of transactions may be and firms in that  
02:41 8 context.

02:41 9 Furthermore, at the World Bank, I  
02:41 10 was involved extensively in relation to  
02:41 11 thinking about issues pertaining to  
02:41 12 international insolvencies, thinking about  
02:41 13 where assets might be located, where  
02:41 14 jurisdiction might be established, for the  
02:41 15 purposes of international insolvencies.

02:41 16 As far as my research is  
02:41 17 concerned, I have worked extensively on issues  
02:41 18 relating to cross-border finance,  
02:41 19 international standard setting in that regard.

02:41 20 And so the indicia that I provide  
02:41 21 here is based on an understanding of what four  
02:41 22 core factors would be that would be supported  
02:41 23 by that research and experience.

02:41 24 And so I believe that researchers  
02:41 25 in my field would be supportive of the

02:42 1 conclusions I draw here.

02:42 2 Q. But there's no way to know for  
02:42 3 sure because they're not aware of your  
02:42 4 conclusions that you draw here. Correct?

02:42 5 MS. ZORNBERG: Objection. Asked  
02:42 6 and answered.

02:42 7 A. I don't believe the opinion's  
02:42 8 been seen. I believe it's a confidential  
02:42 9 opinion.

02:42 10 Q. Okay. Can we go back to the end  
02:42 11 of paragraph 33 which is on page 18. Can you  
02:42 12 explain to me -- strike that.

02:43 13 Professor, do you see at the end  
02:43 14 of paragraph 33 where you write:

02:43 15 "In this way, the 'floor' or  
02:43 16 'pit' is now very much electronic and  
02:43 17 essentially dematerialized."

02:43 18 Do you see that?

02:43 19 A. (Document review.)

02:43 20 Yes.

02:43 21 Q. Can you reconcile for me your  
02:43 22 view that the trading function of an exchange  
02:43 23 is essentially dematerialized with your  
02:43 24 conclusion that an exchange has a geographical  
02:43 25 location, as reflected at the end of paragraph

02:43 1 71?

02:43 2 MS. ZORNBERG: Object to form.

02:43 3 You can answer.

02:43 4 A. The opinion sets out four  
02:43 5 criteria that are indicative of the location  
02:44 6 of an exchange. Those four criteria provide  
02:44 7 an understanding of what the institutional  
02:44 8 existence of an exchange is. They provide and  
02:44 9 link to the governance, the processes, the  
02:44 10 rules of an exchange.

02:44 11 And so that is very much  
02:44 12 consistent with the fact that an exchange runs  
02:44 13 a electronic trading operation.

02:44 14 Q. And the electronic trading  
02:44 15 operation is the part that's dematerialized in  
02:44 16 your view. Is that correct?

02:44 17 A. The electronic trading operation,  
02:44 18 parts of it may be very physical. They may  
02:44 19 involve bricks and mortar, computers at the  
02:44 20 exchange.

02:44 21 Q. Servers? Sorry.

02:44 22 A. So they may involve physical  
02:45 23 aspects. "Dematerialized" refers to the fact  
02:45 24 of electronic trading.

02:45 25 Q. And just to follow up, that

02:45 1 electronic trading operation would also  
02:45 2 involve servers, too. Correct?

02:45 3 A. Coming back do my earlier answer,  
02:45 4 a part of that operation, the matching of one  
02:45 5 byte with another, b-y-t-e, with another, at  
02:45 6 some point would likely involve the operation  
02:45 7 of some server.

02:45 8 However, that trade process is  
02:45 9 much bigger and deeper than the simple  
02:45 10 mechanical matching of one byte, b-y-t-e, with  
02:45 11 another.

02:45 12 Q. Is a trade final when -- strike  
02:45 13 that.

02:45 14 Is a trade final upon the simple  
02:45 15 mechanical matching of one byte with another  
02:45 16 if the one byte on the one side is an offer to  
02:45 17 buy and the other byte on the other side is an  
02:45 18 offer to sell?

02:45 19 A. When trades match, they becoming  
02:45 20 binding in accordance with the rules and  
02:45 21 processes of an exchange.

02:46 22 Q. And I'm asking about when -- what  
02:46 23 moment in time. So when the offer to buy byte  
02:46 24 and the offer to sell byte meet somewhere, is  
02:46 25 that the moment in which the trade is

02:46 1 finalized?

02:46 2 MS. BUNTING: Objection.

02:46 3 MS. ZORNBERG: Object to form.

02:46 4 Q. You can answer.

02:46 5 A. So that matches. However, that  
02:46 6 also has to be recognized as matched by the  
02:46 7 exchange. So the exchange has to validate  
02:46 8 that matching.

02:46 9 It's not simply the case that one  
02:46 10 electron interacts with another electron in  
02:46 11 space. The exchange has to give it form. And  
02:46 12 the exchange has to validate that interaction  
02:46 13 with its own rules and processes to determine  
02:46 14 whether that electron matching was done in a  
02:46 15 valid way in accordance with the exchange's  
02:46 16 rules and processes.

02:46 17 Q. So it's your view that the trade  
02:46 18 is finalized at some moment in time past the  
02:46 19 matching of the offer to buy byte and the  
02:46 20 offer to sell byte?

02:46 21 MS. ZORNBERG: Objection.

02:46 22 A. The point I'm making is  
02:46 23 conceptual. The conceptual point I'm making  
02:47 24 here is that the electron matching of one  
02:47 25 electron with another isn't sufficient.

02:47 1                   The exchange has to be present in  
02:47 2                   its rules and processes to validate that  
02:47 3                   matching is providing a binding trade on the  
02:47 4                   platform of the exchange.

02:47 5                   Q.     Okay. Let me pose a  
02:47 6                   hypothetical. If I'm sitting at my computer  
02:47 7                   and I enter a keystroke in which I offer to  
02:47 8                   buy on a cryptocurrency exchange, in your  
02:47 9                   view, is the trade final?

02:47 10                  MS. BUNTING: Objection.

02:47 11                  A.     No.

02:47 12                  Q.     Okay. What needs to happen next?

02:47 13                  A.     So once you've submitted an order  
02:47 14                  to buy, where has that -- where have you  
02:47 15                  submitted that order?

02:48 16                  Q.     Let's say Binance.

02:48 17                  (Stenographer clarification.)

02:48 18                  A.     So once you've submitted that  
02:48 19                  order into the -- Binance's order submission  
02:48 20                  system, that order has to then -- that  
02:48 21                  instruction, rather, has then to be turned  
02:48 22                  into an order.

02:48 23                  So the instruction that you gave  
02:48 24                  into the Binance order submission system then  
02:48 25                  has to be digested by that order submission



02:48 1 system, vetted, validated, and then it enters  
02:48 2 the matching engine of Binance, whereupon it  
02:48 3 may match with another corresponding offer.  
02:48 4 And as and when that happens, a trade becomes  
02:48 5 final.

02:48 6 Q. When after the matching of my  
02:48 7 offer to buy with the offer to sell does the  
02:48 8 trade become final?

02:48 9 A. Ideally, that process should  
02:48 10 happen as soon as possible afterwards.

02:48 11 Q. Let me ask a better question.  
02:48 12 What has to happen after my offer  
02:49 13 to buy and the other person's offer to sell  
02:49 14 match in order for the trade to become final?

02:49 15 A. As soon as it matches, the  
02:49 16 exchange determines that it's final. But that  
02:49 17 matching process is set up in such a way that  
02:49 18 the orders that are coming into the exchange  
02:49 19 are vetted and validated as orders recognized  
02:49 20 by the exchange's order submission system.  
02:49 21 Once that's done, those orders match and they  
02:49 22 become final.

02:49 23 Q. So if the exchange's rules are  
02:49 24 such that the trade becomes final on matching,  
02:49 25 then the moment in time it becomes final is

02:49 1 when my offer to buy meets the other person's  
02:49 2 offer to sell?

02:49 3 A. As soon as possible afterwards.

02:49 4 Q. Okay. Turning back to paragraph  
02:50 5 71, you use the word "offer" in the -- strike  
02:50 6 that.

02:50 7 You use the word "offer"  
02:50 8 throughout paragraph 71.

02:50 9 In that paragraph, are you  
02:50 10 offering any opinion on the meaning of the  
02:50 11 term "offer" under the Securities Act of 1933?

02:50 12 A. I am not.

02:50 13 Q. Okay. And when you use the word  
02:50 14 "offer," are you intending to use it  
02:50 15 co-extensively with the meaning of the word  
02:50 16 "offer" under the Securities Act of 1933?

02:50 17 MS. ZORNBERG: Objection. Asked  
02:50 18 and answered.

02:50 19 Are you specific to paragraph 71  
02:50 20 still?

02:50 21 MR. SYLVESTER: Yes.

02:50 22 A. I am not.

02:50 23 Q. Okay. Is there any place in your  
02:50 24 report where you use the word "offer" and you  
02:50 25 intend it to be co-extensive with the meaning

02:51 1 of the term "offer" in the Securities Act of  
02:51 2 1933?

02:51 3 A. I do not.

02:51 4 Q. Okay. Is it your opinion that in  
02:51 5 the case of each unit of XRP offered by  
02:51 6 defendants, defendant's offer was limited to  
02:51 7 the entry of a buy-or-sell order on a  
02:51 8 cryptocurrency exchange?

02:51 9 MS. ZORNBERG: Objection.

02:51 10 A. I'm sorry. Can you repeat the  
02:51 11 question.

02:51 12 Q. Sure. Is it your opinion that in  
02:51 13 the case of each unit of XRP offered by  
02:51 14 defendants, defendants' offer was limited to  
02:51 15 the entry of a buy-or-sell order on a  
02:51 16 cryptocurrency exchange?

02:51 17 MS. ZORNBERG: Objection.

02:51 18 A. My opinion here --

02:51 19 MS. ZORNBERG: Outside the scope.

02:51 20 THE WITNESS: Sorry.

02:51 21 A. My opinion here relates to the  
02:51 22 question about how offers to buy and sell  
02:51 23 cryptocurrencies in exchange are made and  
02:51 24 become final and where the exchange is then  
02:51 25 located.

02:52 1 Q. As part of your work on your --  
02:52 2 strike that.

02:52 3 As part of forming your expert  
02:52 4 opinion, did you consider the geographic  
02:52 5 location where orders to buy or sell XRP were  
02:52 6 placed?

02:52 7 MS. ZORNBERG: Object to form.

02:52 8 A. I'm sorry, could you repeat the  
02:52 9 question.

02:52 10 Q. Sure. As part of your work  
02:52 11 forming your opinion, did you consider the  
02:52 12 geographic location where orders to buy or  
02:52 13 sell XRP were placed?

02:52 14 MS. ZORNBERG: Object to form.

02:52 15 A. In forming my opinion, I  
02:52 16 considered the microstructural processes for  
02:52 17 submitting orders to an exchange in order to  
02:52 18 determine how these microstructural processes  
02:52 19 operate to make the offer to buy and sell a  
02:53 20 cryptocurrency final on a cryptocurrency  
02:53 21 exchange.

02:53 22 Q. Can you define "microstructural  
02:53 23 processes" as you just used it in your answer?

02:53 24 A. Sure. There's no defined term as  
02:53 25 such with respect to microstructure; however,

02:53 1 broadly speaking, this refers to the detailed  
02:53 2 processes, operational processes by which  
02:53 3 trades happen and value moves within an  
02:53 4 exchange.

02:53 5 Q. As part of forming your opinions  
02:53 6 set forth in your report, did you consider  
02:53 7 where the -- a person submitting an offer to  
02:53 8 buy or sell on an exchange was physically  
02:53 9 located?

02:53 10 A. What I considered in my opinion  
02:53 11 was how offers to buy and sell a  
02:53 12 cryptocurrency are made in order for these  
02:53 13 offers to be valid orders on an exchange that  
02:53 14 become binding on that exchange.

02:54 15 As part of that process, I  
02:54 16 detailed the order submission processes that  
02:54 17 allow orders to be made and become valid and  
02:54 18 binding for trades to take place on an  
02:54 19 exchange.

02:54 20 Q. In your view and in your opinion,  
02:54 21 is there any relevance to where an individual  
02:54 22 trader is located in the world when he or she  
02:54 23 places an order on an exchange?

02:54 24 A. What do you mean by "place an  
02:54 25 order"?

02:54 1 Q. Let's go back to my example.  
02:54 2 Let's go back to the hypothetical. I'm going  
02:54 3 to place an order on Binance. Two  
02:54 4 hypotheticals. In one, I'm sitting here in  
02:54 5 New York City. Another one, I'm sitting in  
02:54 6 London.

02:54 7 Does the difference between my  
02:54 8 physical location in placing an offer to buy  
02:54 9 on Binance have any relevance whatsoever to  
02:54 10 your opinion about where an order takes place?

02:54 11 A. No.

02:54 12 MS. ZORNBERG: Objection -- I'm  
02:54 13 going to object to the form, although  
02:54 14 the witness answered.

02:55 15 Q. And as part of forming your  
02:55 16 opinions in this case, did you consider the  
02:55 17 geographic location that title passed in  
02:55 18 transactions involving the purchase or sale of  
02:55 19 XRP?

02:55 20 MS. ZORNBERG: Object to form.

02:55 21 A. Could you repeat the question.

02:55 22 Q. Sure. In forming your opinions  
02:55 23 in this case, did you consider the geographic  
02:55 24 location that title passed in transactions  
02:55 25 involving the purchase or sale of XRP?

02:55 1 MS. ZORNBERG: Same objection.

02:55 2 A. The purchase and sale of XRP. In  
02:55 3 what context are you discussing this?

02:55 4 Q. The purchase of XRP on  
02:55 5 cryptocurrency exchanges.

02:55 6 A. Could you repeat the question  
02:55 7 again.

02:55 8 Q. Sure.

02:55 9 MS. BUNTING: Could you slow it  
02:55 10 down a bit, Mark. It's just a bit fast.

02:55 11 MR. SYLVESTER: Sure.

02:55 12 Q. In forming your opinions in this  
02:55 13 case, did you consider the geographic location  
02:55 14 that title passed in transactions involving  
02:55 15 the purchase or sale of XRP on cryptocurrency  
02:55 16 exchanges?

02:55 17 A. My --

02:55 18 MS. ZORNBERG: Objection.

02:55 19 A. -- opinion, I looked at how  
02:55 20 offers to buy and sell cryptocurrencies are  
02:55 21 made on an exchange, how they become final in  
02:55 22 the exchange, final and binding on the  
02:56 23 exchange, and where the exchange is located.

02:56 24 Q. Is it of any relevance to your  
02:56 25 opinion where title is passed in a sale on a

02:56 1 cryptocurrency exchange?

02:56 2 MS. ZORNBERG: Objection.

02:56 3 A. Could you repeat the question  
02:56 4 again.

02:56 5 Q. Sure. Is it of any relevance to  
02:56 6 your opinion where title is passed for any  
02:56 7 given sale on a cryptocurrency exchange?

02:56 8 A. No.

02:56 9 Q. Okay. Is it -- was it of any  
02:56 10 relevance to your expert opinion the  
02:56 11 geographic location in which payment was  
02:56 12 exchanged for any transaction that occurred on  
02:56 13 a cryptocurrency exchange?

02:56 14 MS. ZORNBERG: Object to form.

02:56 15 A. So in looking at the question of  
02:56 16 how offers to buy and sell cryptocurrencies  
02:57 17 are made on an exchange and become binding on  
02:57 18 the exchange and its location, I -- it's not  
02:57 19 relevant to my opinion regarding payment.

02:57 20 Q. Was it of any relevance to your  
02:57 21 opinion -- strike that.

02:57 22 Was the geographic location of  
02:57 23 any contracts for the purchase or sale of a  
02:57 24 digital asset of any relevance to your opinion  
02:57 25 in this case?



02:57 1 A. I'm not sure what you mean by  
02:57 2 that.

02:57 3 Q. Under the user agreements you  
02:57 4 reviewed, at some point, a trader on a  
02:57 5 cryptocurrency exchange becomes bound  
02:57 6 to -- strike that.

02:57 7 Is there a point in a  
02:57 8 cryptocurrency transaction in which a trader  
02:58 9 becomes bound to -- becomes bound to his offer  
02:58 10 to buy or sell?

02:58 11 MS. ZORNBERG: On an exchange?

02:58 12 MR. SYLVESTER: On an exchange.

02:58 13 A. Well, yes. When the orders to  
02:58 14 buy and sell match, that transaction becomes  
02:58 15 binding on the participants that submit that  
02:58 16 order.

02:58 17 Q. Was where the orders to buy and  
02:58 18 sell match of any relevance to you in  
02:58 19 determining where a cryptocurrency exchange  
02:58 20 was located for purposes of your opinion?

02:58 21 MS. ZORNBERG: Object to form.

02:58 22 A. In my opinion, orders to buy and  
02:58 23 sell are matched by the exchange and on the  
02:58 24 exchange. And so they happen at the location  
02:58 25 of the exchange, as set out in this opinion.

02:58 1 Q. In your opinion, is it possible  
02:59 2 for parties to trade on an exchange and become  
02:59 3 bound to the transaction at two separate times  
02:59 4 or locations?

02:59 5 A. In my opinion, parties become  
02:59 6 bound to the transaction once orders to buy  
02:59 7 and sell the cryptocurrency are made on the  
02:59 8 exchange and made binding by the exchange in  
02:59 9 accordance with its rules and processes and at  
02:59 10 the geographic location of the exchange.

02:59 11 Q. Did any of the user agreements  
02:59 12 that you reviewed in connection with your work  
02:59 13 on this case expressly state where trades of  
02:59 14 digital assets occur?

02:59 15 A. I'm not sure what you mean by  
02:59 16 that.

02:59 17 Q. Did any of the user agreements  
02:59 18 that you reviewed in this case state, "The  
02:59 19 trades on this exchange occur in," and then  
02:59 20 name a jurisdiction?

03:00 21 A. Many of the user agreements that  
03:00 22 I reviewed, most of them, had some kind of  
03:00 23 governing law provision attached to it. And  
03:00 24 that governing law provision would govern  
03:00 25 presumably whatever rule book and terms of

03:00 1 services apply to the parties that are  
03:00 2 transacting on the exchange.

03:00 3 Q. I'm asking something a little  
03:00 4 narrower, though, just about your review of  
03:00 5 the words that are in the user agreements.

03:00 6 Did any of those user agreements  
03:00 7 expressly state, "The trades on our exchange  
03:00 8 take place in X jurisdiction"?

03:00 9 A. I can't recall.

03:00 10 Q. If you had seen those words or  
03:00 11 language similar to that in a user agreement,  
03:00 12 do you think you would have put that in your  
03:00 13 report?

03:00 14 MS. ZORNBERG: Objection.

03:00 15 A. Yes.

03:01 16 Q. Why?

03:01 17 A. May be a consideration to think  
03:01 18 about.

03:01 19 Q. Let's look at paragraph 77,  
03:01 20 please. I'm looking at the bottom of -- the  
03:01 21 portion of 77 that's on page 42, starting with  
03:01 22 "In other words, parties do not generally  
03:01 23 know."

03:01 24 Do you see where I am? It's the  
03:01 25 last, say, five lines of paragraph 77 on page

03:02 1 42.

03:02 2 A. (Document review.)

03:02 3 Okay.

03:02 4 Q. You write:

03:02 5 "In other words, parties do not  
03:02 6 generally know in advance with whom they  
03:02 7 are trading. They cannot submit an  
03:02 8 offer with the express aim of trading  
03:02 9 with a specific party on the other side.  
03:02 10 It seems extremely unlikely that  
03:02 11 cryptocurrency exchanges would depart  
03:02 12 from this model."

03:02 13 Do you see that?

03:02 14 A. Yes.

03:02 15 Q. Do you know one way or another  
03:02 16 whether or not cryptocurrency exchanges  
03:02 17 actually do depart from this model?

03:03 18 A. Whether they do?

03:03 19 Q. Mm-hmm.

03:03 20 MS. ZORNBERG: Object to form.

03:03 21 A. Candidly, it would be unthinkable  
03:03 22 and possibly create a venue that is rife with  
03:03 23 manipulation if they did. So in my mind, any  
03:03 24 exchange that did would be a completely  
03:03 25 disreputable exchange.

03:03 1 Q. Be that as it may, sitting here  
03:03 2 today, do you know whether or not any  
03:03 3 cryptocurrency exchanges actually do depart  
03:03 4 from this model?

03:03 5 A. I can't say for sure. I would be  
03:03 6 shocked if they did. In the user agreements  
03:03 7 that I looked at, there were at least two,  
03:03 8 DigiFinex and BitMax, whose language made  
03:03 9 clear that trading in these spaces is  
03:03 10 anonymous.

03:03 11 It is a absolutely cardinal rule  
03:03 12 of traditional marketplaces, modern electronic  
03:04 13 marketplaces, that pretrade anonymity be  
03:04 14 sacrosanct.

03:04 15 Given how deeply cryptocurrency  
03:04 16 exchanges borrow from traditional rules and  
03:04 17 processes of traditional exchanges, and  
03:04 18 particularly given how important this  
03:04 19 principle is, especially arguably in the  
03:04 20 context of cryptocurrencies, I would be truly  
03:04 21 shocked if an exchange, cryptocurrency  
03:04 22 exchange, did not have pretrade anonymity as  
03:04 23 part of its offering.

03:04 24 Q. Understood. But do you know one  
03:04 25 way or the other?

03:04 1 MS. ZORNBERG: Objection.

03:04 2 A. With respect to BitMEX, with  
03:04 3 respect to DigiFinex, their rules of service  
03:04 4 certainly suggest that transactions are  
03:04 5 safeguarding pretrade anonymity.

03:05 6 Furthermore, the order submission  
03:05 7 processes that are described in the user  
03:05 8 agreements that I've reviewed for most of the  
03:05 9 exchanges in Table A certainly seem to suggest  
03:05 10 that trading there is anonymous.

03:05 11 For example, the user -- the  
03:05 12 order submission paragraphs do not require  
03:05 13 that one specifies a particular party to  
03:05 14 transact with. They simply refer to the  
03:05 15 placing of a buying and selling order into the  
03:05 16 order -- into the order submission system.

03:05 17 Q. Let's go to paragraph 83, please.  
03:06 18 My question is: Is the question of the point  
03:06 19 at which an offer to trade made on an exchange  
03:06 20 becomes binding controlled by the contractual  
03:06 21 provisions of an exchange's user agreement?

03:06 22 A. I'm so sorry. I was just reading  
03:06 23 that paragraph.

03:06 24 Q. Sure. Did you want to continue?  
03:06 25 I --

03:06 1 A. If you can give me just two  
03:06 2 seconds.

03:06 3 Q. Of course. Go ahead.

03:06 4 A. Thank you.

03:06 5 (Document review.)

03:06 6 Q. So may question was: Is the  
03:07 7 question of the point at which an offer to  
03:07 8 trade made on an exchange becomes binding  
03:07 9 controlled by the contractual provisions of  
03:07 10 the user agreement of that exchange?

03:07 11 A. Those are -- those user  
03:07 12 agreements stipulate the rules of the road as  
03:07 13 between the exchange and the user. The  
03:07 14 exchange establishes its order submission,  
03:07 15 matching, and finality procedures, and users  
03:07 16 agree to be subject to those submission,  
03:07 17 matching, and finality procedures.

03:07 18 Q. So is it fair to say that those  
03:07 19 user agreements govern the question of when an  
03:07 20 offer to trade made on an exchange becomes  
03:07 21 binding?

03:07 22 A. They govern the bargain reached  
03:07 23 between the exchange and the user to determine  
03:07 24 when orders to buy and sell a cryptocurrency  
03:07 25 become binding and final on the exchange.

03:07 1 Q. Is there anything outside of the  
03:08 2 user agreement that is relevant to the  
03:08 3 question of when an offer to trade on an  
03:08 4 exchange becomes binding?

03:08 5 MS. ZORNBERG: Object to form.

03:08 6 A. I'm not sure what you mean.

03:08 7 Q. We can move on. Looking at the  
03:08 8 last two sentences of paragraph 83, you write:

03:08 9 "As per my review of various user  
03:08 10 agreements, these rules establish, inter  
03:09 11 alia, processes and procedures relating  
03:09 12 to dispute resolution, governing law,  
03:09 13 place of domicile, and incorporation.  
03:09 14 In doing so, they also work to tie an  
03:09 15 exchange more formally to a geographic  
03:09 16 locale as a matter of its operation and,  
03:09 17 arguably, also in the expectations of  
03:09 18 those that use the venue."

03:09 19 Can you explain how the processes  
03:09 20 and procedures relating to dispute resolution,  
03:09 21 governing law, place of domicile, and  
03:09 22 incorporation work to tie an exchange more  
03:09 23 formally to a geographic locale as a matter of  
03:09 24 its operation?

03:09 25 A. So here the terms of service



03:09 1 often include a governing law, as set out in  
03:09 2 Table A, for the different exchanges. That  
03:10 3 governing law can determine any number of  
03:10 4 important issues, for example, in relation to  
03:10 5 asset distribution, potentially, upon an  
03:10 6 exchange's insolvency, for example.

03:10 7 And so in so doing, the terms of  
03:10 8 service and the procedures that establish  
03:10 9 where governing law -- what governing law  
03:10 10 applies to that will tie the geographic  
03:10 11 location of the exchange more closely to the  
03:10 12 exchange's terms of service and its terms of  
03:10 13 operation.

03:10 14 Q. In the last sentence of paragraph  
03:10 15 83, can you explain what you mean by the  
03:10 16 phrase "as a matter of its operation"?

03:10 17 A. Yes. What I mean in general is  
03:11 18 the -- as a part of its institutional  
03:11 19 existence.

03:11 20 Q. Is there a particular operational  
03:11 21 component to its institutional existence that  
03:11 22 you're referencing in the last sentence of  
03:11 23 paragraph 83?

03:11 24 A. What I mean here is that these  
03:11 25 user agreements tie the general workings and

03:11 1 institutional existence of an exchange more  
03:11 2 closely to its geographic location.

03:11 3 Q. In your view, does the  
03:11 4 understanding of market participants affect  
03:11 5 the actual geographic location where trading  
03:11 6 platforms match trades?

03:11 7 MS. ZORNBERG: Objection. Asked  
03:11 8 and answered.

03:11 9 You can answer.

03:11 10 A. So as set out in Table A, and as  
03:12 11 detailed in this opinion, I set out four core  
03:12 12 indicia that I believe are credible and  
03:12 13 informative in providing an analysis of where  
03:12 14 an exchange is located.

03:12 15 And one of these criteria  
03:12 16 includes the assessment of reasonable market  
03:12 17 participants as to where they think an  
03:12 18 exchange is located.

03:12 19 Q. And does your opinion -- strike  
03:12 20 that.

03:12 21 Are you offering an opinion on  
03:12 22 what reasonable market participants believe as  
03:12 23 to the locations of all of the exchanges  
03:12 24 listed in your Table A?

03:12 25 A. I'm not.

03:12 1 Q. To take, for example, Bitlish,  
03:13 2 which appears to be incorporated in the United  
03:13 3 Kingdom -- I'm looking at page 61.

03:13 4 Do you see that?

03:13 5 A. Yes.

03:13 6 Q. If, for some strange reason,  
03:13 7 everyone who traded on Bitlish thought that  
03:13 8 Bitlish was located in the United States,  
03:13 9 would that have any bearing on where Bitlish  
03:13 10 was actually located?

03:13 11 A. So the four criteria that I set  
03:13 12 out here provide a guidepost for determining  
03:13 13 the location of an exchange and in determining  
03:13 14 whether we can exclude or include the US as a  
03:13 15 place where these exchanges may be located.

03:13 16 If one of these criteria were to  
03:13 17 refer to the US as a possible location, that  
03:13 18 would be a part of thinking about whether the  
03:13 19 US could be excluded as a possible location or  
03:13 20 included.

03:13 21 Q. So if your average trader thought  
03:14 22 Bitlish was located in the United States,  
03:14 23 would you then have included Bitlish within  
03:14 24 the four that have some indicia of US contact?

03:14 25 A. If market participants believed

03:14 1 that Bitlish was located in the United States,  
03:14 2 then I could not exclude Bitlish as an  
03:14 3 exchange that wasn't located in the United  
03:14 4 States. In other words, that would be part of  
03:14 5 the four exchanges that have indicia of  
03:14 6 location in the US.

03:14 7 Q. Okay. And for all of the  
03:14 8 exchanges that are listed in your Table A  
03:14 9 what, if anything, did you do to determine  
03:14 10 what actual market participants believe as to  
03:14 11 where these exchanges are located?

03:14 12 A. In terms of trying to determine  
03:14 13 or trying to gauge the perception of market  
03:14 14 participants, I looked at credible news  
03:15 15 sources to get a sense of where the general  
03:15 16 perception of location is likely to be.

03:15 17 Q. What credible news sources did  
03:15 18 you review?

03:15 19 A. They are set out here in the  
03:15 20 footnotes.

03:15 21 Q. How did you locate these news  
03:15 22 sources?

03:15 23 A. I --

03:15 24 Q. Strike that. Actually, I want to  
03:15 25 clarify. When you say they're set out here in

03:15 1 the footnotes, are you referring to the  
03:15 2 footnotes that appear under Table A?

03:15 3 A. That's right.

03:15 4 Q. Okay. Let me re-ask the  
03:15 5 question.

03:15 6 How did you locate the news  
03:15 7 sources listed on the footnotes under Table A?

03:15 8 A. Asked counsel for assistance in  
03:15 9 helping collect reputable news articles that  
03:15 10 would reference particular exchanges set out  
03:15 11 in Table A.

03:15 12 I reviewed and checked and went  
03:16 13 through these articles to determine if they  
03:16 14 provided a credible gauge in my opinion, and  
03:16 15 then I -- these were included as part of Table  
03:16 16 A's indicia as to the perception of market  
03:16 17 participants with respect to each exchange.

03:16 18 Q. What instructions, if any, did  
03:16 19 you give counsel on how to locate materials  
03:16 20 that supplied you with the views of market  
03:16 21 participants as to where cryptocurrency  
03:16 22 exchanges are located?

03:16 23 MS. ZORNBERG: Hold on just a  
03:16 24 minute. I just want to consult on a  
03:16 25 privilege question.

03:16 1 MR. SYLVESTER: Yes, of course.  
03:16 2 Let's go off the record while you guys  
03:16 3 consult, please.

03:16 4 THE VIDEOGRAPHER: The time is  
5 3:16 p.m. This concludes Media 5. Off  
6 the record.

7 (Recess taken from 3:16 p.m. to  
8 3:25 p.m.)

9 THE VIDEOGRAPHER: The time now  
10 is 3:25 p.m. This begins Media 6. On  
11 the record.

03:25 12 MS. ZORNBERG: Okay. Thank you.  
03:25 13 So Mr. Sylvester, we took a short break  
03:25 14 in response to your last question  
03:25 15 because of concerns so I could consult  
03:25 16 with cocounsel about issues that touch  
03:25 17 on privilege.

03:25 18 And I would just like to make a  
03:25 19 proffer to see if it helps us move  
03:25 20 forward. If not, we'll take it question  
03:25 21 by question, of course.

03:25 22 But the proffer is that there was  
03:25 23 dialogue by Professor Yadav with counsel  
03:25 24 in relation to selecting sources that  
03:25 25 she wished to use for her report.

03:25 1 Professor Yadav made the  
03:25 2 determinations ultimately after viewing  
03:26 3 materials about which sources she would  
03:26 4 use, and she's testified to her process  
03:26 5 for that.

03:26 6 The concern touching on privilege  
03:26 7 and attorney work product is that the  
03:26 8 nature of the dialogue was -- it's  
03:26 9 intertwined in a way that I think makes  
03:26 10 it difficult for her to answer the  
03:26 11 questions -- your question more  
03:26 12 specifically without getting into  
03:26 13 communications with counsel.

03:26 14 So first, let me just ask  
03:26 15 Professor Yadav if what I've said in  
03:26 16 terms of the proffer about dialogue with  
03:26 17 counsel is accurate to your knowledge?

03:26 18 THE WITNESS: To my knowledge,  
03:26 19 yes.

03:26 20 MS. ZORNBERG: So that's the  
03:26 21 proffer. I don't know if that helps  
03:26 22 you, there was testimony this morning  
03:26 23 under questioning by Ms. Stewart about  
03:26 24 her process so we can -- beyond that, we  
03:26 25 can take it one by one if you'd like.

03:26 1 MR. SYLVESTER: That sounds good.  
03:26 2 And just for the record, I'm only  
03:27 3 concerned with any instructions that the  
03:27 4 professor gave to anyone, counsel or  
03:27 5 otherwise, performing work on her behalf  
03:27 6 to prepare her opinions in this report.  
03:27 7 I'm not interested in work product  
03:27 8 flowing from counsel to Professor Yadav.  
03:27 9 Understanding --

03:27 10 MS. ZORNBERG: Yeah.

03:27 11 MR. SYLVESTER: I think what  
03:27 12 you're saying is that it might be hard  
03:27 13 to separate the two.

03:27 14 MS. ZORNBERG: That's the issue.

03:27 15 MR. SYLVESTER: But maybe I can  
03:27 16 ask you the question and see if it's  
03:27 17 possible for you to answer, strictly  
03:27 18 your instructions to counsel, that  
03:27 19 direction.

03:27 20 Which I think we both agree it  
03:27 21 can't be work product.

03:27 22 MS. ZORNBERG: Well, I'm not sure  
03:27 23 that it can't be work product. Let me  
03:27 24 make the proffer a little bit more  
03:27 25 specific. I'll ask professor Yadav to



03:27 1 confirm so you understand the nature.

03:27 2 MR. SYLVESTER: Okay.

03:27 3 MS. ZORNBERG: If the instruction  
03:27 4 was a request for the research  
03:27 5 assistants to identify and pull together  
03:27 6 articles from reputable sources, and  
03:28 7 then the dialogue with counsel that  
03:28 8 followed was a dialogue surrounding  
03:28 9 sources in relation to her request for  
03:28 10 assistance, we don't think it's  
03:28 11 appropriate for her to get into the back  
03:28 12 and forth of that dialogue.

03:28 13 And ultimately what came out of  
03:28 14 it was a set of materials that she  
03:28 15 reviewed to decide what to include or  
03:28 16 not include in her report.

03:28 17 Professor Yadav, is that a fair  
03:28 18 statement?

03:28 19 THE WITNESS: That's fair.

03:28 20 MR. SYLVESTER: Okay. What I'm  
03:28 21 struggling with is just, you know, if  
03:28 22 she had asked a research assistant  
03:28 23 instead of counsel, then I'd have a  
03:28 24 perfect view of exactly the methodology  
03:28 25 she conducted that's baked into Table A.

03:28 1 And if she asked counsel instead  
03:28 2 of a research assistant, it seems like  
03:28 3 there's little bit of a black box as to  
03:28 4 the methodology. That's, sort of, what  
03:28 5 I'm hearing.

03:28 6 MS. ZORNBERG: I disagree with  
03:28 7 that in the sense that she has  
03:28 8 already -- Professor Yadav has already  
03:29 9 testified that she sought assistance of  
03:29 10 counsel in locating media, public media  
03:29 11 sources on the exchanges in Table A.

03:29 12 There's been a proffer that  
03:29 13 Professor Yadav has confirmed that she  
03:29 14 had a dialogue with counsel in relation  
03:29 15 to her specific request that they assist  
03:29 16 in pulling sources. She's provided  
03:29 17 testimony that counsel did, in fact,  
03:29 18 pull together a set of materials to give  
03:29 19 her for consideration and review.

03:29 20 She's testified about her process  
03:29 21 of reviewing them. She's testified that  
03:29 22 she included it in her report the ones  
03:29 23 she found to be credible, and the report  
03:29 24 extensively identifies each one of those  
03:29 25 media articles.

03:29 1 MR. SYLVESTER: Okay. I hear  
03:29 2 you. I'm not sure that quite addresses  
03:29 3 my concerns. But I think I have a  
03:29 4 couple questions that I'll ask and just  
03:29 5 see if you're able to answer them.

03:29 6 MR. SOLOMON: Hey Mark, if I can  
03:29 7 just say it in a slightly different way,  
03:29 8 maybe it will help. Probably saying the  
03:29 9 same thing.

03:29 10 But, you know, she -- if she  
03:29 11 relies on facts or assumptions that she  
03:30 12 used to form her opinions about that,  
03:30 13 that's fair game and you can ask about  
03:30 14 that. You can ask about assumptions,  
03:30 15 you can ask about facts. Those are not  
03:30 16 privileged.

03:30 17 But other than facts or  
03:30 18 assumptions that she considered or  
03:30 19 relied on, we believe that  
03:30 20 communications with counsel are  
03:30 21 privileged. And those communications  
03:30 22 could be compromised by her explaining  
03:30 23 to you direction, express direction she  
03:30 24 gave to lawyers for Mr. Garlinghouse,  
03:30 25 Mr. Larsen, or Ripple in connection with

03:30 1 preparation of her report.

03:30 2 Now, you're fine asking her  
03:30 3 obviously, you know, did you rely on  
03:30 4 this? Why would you rely on it? Why  
03:30 5 did you think that was credible?

03:30 6 But we're just trying to avoid a  
03:30 7 situation where she's telling you what  
03:30 8 she told lawyers. That would be what we  
03:30 9 believe to be privileged communications,  
03:30 10 outside of facts and assumptions that  
03:30 11 she used in connection with her report.

03:30 12 That's our position. And I think  
03:30 13 we're going to stick to that position.  
03:30 14 So --

03:30 15 MR. SYLVESTER: I understand. I  
03:30 16 think the use of lawyers in this  
03:30 17 particular instance seems to insulate  
03:31 18 some questioning from our perspective on  
03:31 19 her methodology. That's my view. But  
03:31 20 we can take it a couple at a time.

03:31 21 MS. ZORNBERG: We'll disagree on  
03:31 22 that but ...

03:31 23 MR. SYLVESTER: Okay.

03:31 24 BY MR. SYLVESTER:

03:31 25 Q. So let me ask you this: If it's

03:31 1 possible to just isolate instructions you gave  
03:31 2 counsel, perhaps at the beginning of the  
03:31 3 process, what instructions, if any, did you  
03:31 4 give to counsel on how to locate materials  
03:31 5 that supplied you with views of market  
03:31 6 participants as to where a cryptocurrency  
03:31 7 exchange was located?

03:31 8 MS. ZORNBERG: Okay. So  
03:31 9 Professor Yadav, I'm going to instruct  
03:31 10 you to answer that question only if you  
03:31 11 can do so in a way that is not  
03:31 12 intertwined with substantive dialogue  
03:31 13 and communications with counsel. In  
03:31 14 other words, a back and forth.

03:31 15 A. At the very broadest level, I  
03:31 16 requested assistance in identifying  
03:31 17 information on various exchanges in Table A  
03:31 18 from reputable news sources.

03:32 19 Q. Did you identify for counsel what  
03:32 20 news sources you believed to be reputable?

03:32 21 MS. ZORNBERG: Hold it. You can  
03:32 22 answer that -- again, I think the  
03:32 23 instruction is that you can answer that  
03:32 24 if there's a clear yes or no, or  
03:32 25 something that you can say that does not

03:32 1 involve a dialogue between you and  
03:32 2 counsel, sort of a back-and-forth  
03:32 3 discussion.

03:32 4 A. Would you repeat the question,  
03:32 5 please.

03:32 6 MR. SYLVESTER: Madam court  
03:32 7 reporter, would you mind reading that  
03:32 8 back, please.

03:32 9 (Record read by the certified  
03:32 10 stenographer as follows:

03:32 11 "QUESTION: "Did you identify for  
03:32 12 counsel what news sources you believed  
03:33 13 to be reputable?"

03:33 14 A. On a general level, yes.

03:33 15 Q. How did you determine that the  
03:33 16 sources in your report are reputable news  
03:33 17 sources on the topic of what market  
03:33 18 participants believe as to where  
03:33 19 cryptocurrency exchanges are located?

03:33 20 A. So the methodology I used there  
03:34 21 was based on my professional judgment, my  
03:34 22 research into cryptocurrency markets  
03:34 23 generally, my general reading and interest in  
03:34 24 this market to consider and identify sources  
03:34 25 that I believe to be credible and that are

03:34 1 doing well-sourced, thoughtful, nuanced  
03:34 2 reporting on how cryptocurrency exchanges  
03:34 3 operate and how users interact with these  
03:34 4 exchanges.

03:34 5 Q. What criteria did you apply when  
03:34 6 determining whether or not a particular news  
03:34 7 source was credible?

03:34 8 MS. ZORNBERG: Object to form.

03:34 9 A. So in general, I relied on my own  
03:34 10 experience with that news source, reading  
03:34 11 about cryptocurrency exchanges in general as  
03:34 12 part of my research -- as part of my research,  
03:34 13 as part of my teaching.

03:34 14 This judgment as to which news  
03:35 15 sources I believe to be credible came from  
03:35 16 that reading and my experience with absorbing  
03:35 17 news from particular sources that I considered  
03:35 18 to be especially thoughtful, well resourced,  
03:35 19 well sourced, and that appear to be well  
03:35 20 connected with the overall conversation in  
03:35 21 relation to the cryptocurrency ecosystem.

03:35 22 Q. Were there any sources that you  
03:35 23 were presented with that you rejected as  
03:35 24 unreliable?

03:35 25 A. I can't recall specifically.

03:35 1 Q. Okay. Of the exchanges whose  
03:35 2 user agreements you reviewed, are there any  
03:35 3 other than Bittrex that use on-chain  
03:35 4 settlement?

03:35 5 A. I think there may have been one  
03:35 6 that uses on-chain settlement, one other one.  
03:35 7 I can't exactly remember which one. But if I  
03:36 8 can recall, there was one that offers either  
03:36 9 the option for on-chain or does settlement  
03:36 10 on-chain.

03:36 11 Q. Do you know whether -- one way or  
03:36 12 the other whether XRP was traded on the  
03:36 13 exchange you just described?

03:36 14 A. I'm sorry. I have no idea. I  
03:36 15 don't know.

03:36 16 Q. There are certain user agreements  
03:36 17 that you reviewed that provided that, after  
03:36 18 the offer and bid are matched, the trade  
03:36 19 becomes irreversible. Is that right?

03:36 20 A. I'm sorry, could you repeat the  
03:36 21 question?

03:36 22 Q. Sure.

03:36 23 A. Thank you.

03:36 24 Q. There are certain user agreements  
03:36 25 you reviewed that provide that, after the



03:36 1 offer and bid are matched, the trade becomes  
03:36 2 irreversible. Is that right?

03:36 3 A. That's correct.

03:36 4 Q. Were there any user agreements  
03:36 5 you reviewed that were in conflict with that  
03:36 6 position?

03:36 7 A. What the user agreement said, for  
03:36 8 the most part, where information existed,  
03:37 9 referring to our conversation earlier, where  
03:37 10 orders for buying and selling a cryptocurrency  
03:37 11 match, the trade becomes final.

03:37 12 In certain very, very limited  
03:37 13 circumstances, trades may be reversed by the  
03:37 14 exchange, in case of a clearly erroneous  
03:37 15 transaction, for example, and this provision  
03:37 16 was included, for example, in the case of the  
03:37 17 Coinbase user agreement, Coinbase Singapore,  
03:37 18 as well as the BitMax Singapore user  
03:37 19 agreement --

03:37 20 Q. Were --

03:37 21 A. -- for example.

03:37 22 Q. Sorry.

03:37 23 Were there any user agreements  
03:37 24 that you reviewed that did not specify when  
03:37 25 the trade became irreversible?

03:37 1 MS. ZORNBERG: Objection.

03:37 2 A. Returning to our earlier  
03:37 3 discussion, there were some user agreements  
03:37 4 that were very basic and did not fully specify  
03:37 5 the process involved.

03:37 6 Where the process was specified  
03:37 7 and mentioned order handling, as far as I can  
03:37 8 recall, it was very categorical in stating  
03:38 9 that, as soon as orders to buy and sell a  
03:38 10 cryptocurrency match, a trade becomes final  
03:38 11 and binding and, as far as the customers are  
03:38 12 concerned, entirely irreversible.

03:38 13 Q. When you say "there were some  
03:38 14 user agreements that did not fully specify the  
03:38 15 process involved," does that mean that there  
03:38 16 were some user agreements that did not  
03:38 17 expressly set forth when a trade becomes  
03:38 18 irreversible?

03:38 19 MS. ZORNBERG: Objection. Asked  
03:38 20 and answered.

03:38 21 Q. You can answer.

03:38 22 A. Okay. As detailed in my earlier  
03:38 23 response, there were some user agreements that  
03:39 24 were very basic and did not fully specify the  
03:39 25 order handling, submission, and finality

03:39 1 provisions.

03:39 2 Q. Let's look at paragraph 92,  
03:39 3 please, on page 50. The sentence I'm looking,  
03:39 4 it's mid -- it's, sort of, towards the end of  
03:39 5 the paragraph:

03:39 6 "As acknowledged by certain user  
03:39 7 agreements (e.g., Korbit) transactions  
03:39 8 on these exchanges are therefore  
03:39 9 never/infrequently published to the  
03:39 10 cryptocurrency blockchains."

03:40 11 Do you see that?

03:40 12 A. (Document review.)

03:40 13 That's right, thank you.

03:40 14 Q. My question is: Other than  
03:40 15 Korbit, did you review any other user  
03:40 16 agreements that stated that the transactions  
03:40 17 on the exchange would not be published to  
03:40 18 cryptocurrency blockchains?

03:40 19 A. It was implied in a number of the  
03:40 20 user agreements I reviewed. In particular,  
03:40 21 the user agreements stated that the  
03:40 22 transaction would settle immediately.

03:41 23 This was the case, for example,  
03:41 24 in the CoinOne exchange service that's  
03:41 25 referenced here, in the case of Binance, in

03:41 1 the case of Coinbase user agreement, that  
03:41 2 the -- for example, that the transaction would  
03:41 3 settle immediately upon being matched, and  
03:41 4 what this implied was that the clearing and  
03:41 5 settlement happened immediately following the  
03:41 6 transaction becoming final rather than having  
03:41 7 any interaction with an underlying blockchain.

03:41 8 Q. What's the -- strike that.

03:41 9 How is it that you conclude  
03:41 10 that -- strike that.

03:41 11 Is there ever a point at which a  
03:41 12 cryptocurrency trade on, say, Coinbase is  
03:41 13 recorded on the blockchain?

03:41 14 MS. ZORNBERG: Object to form.

03:42 15 A. As far as I can tell by Coinbase  
03:42 16 itself, the settlement happens in-house.  
03:42 17 Where interaction with an underlying  
03:42 18 blockchain may happen is when a customer  
03:42 19 transfers their holdings to an address on an  
03:42 20 underlying blockchain.

03:42 21 A couple of the user agreements  
03:42 22 explicitly allow for this and mention the fact  
03:42 23 that they will charge a user for any fees that  
03:42 24 arise in relation to a transaction to an  
03:42 25 underlying blockchain to transfer value out

03:42 1 from an exchange wallet into a wallet on the  
03:42 2 underlying blockchain.

03:42 3 Q. At the -- let's turn to paragraph  
03:42 4 98, please. That's page 53. You  
03:42 5 write -- this is the last sentence:

03:43 6 "By becoming final and binding  
03:43 7 within an exchange and not requiring  
03:43 8 settlement on a blockchain, it is my  
03:43 9 opinion that transactions become binding  
03:43 10 in the geographic location of the  
03:43 11 exchange upon which the trades are  
03:43 12 made."

03:43 13 My question is: What is the  
03:43 14 relevance to not requiring settlement on a  
03:43 15 blockchain to your opinion set forth that I  
03:43 16 just read?

03:43 17 A. I'm sorry, what was your  
03:43 18 question?

03:43 19 Q. What is the relevance of the fact  
03:43 20 that settlement on the blockchain is not  
03:43 21 required to your opinion set forth in the last  
03:43 22 sentence of paragraph 98?

03:43 23 A. What I mean here is that the  
03:44 24 transactions become valid and binding as soon  
03:44 25 as the orders are matched and clearing and

03:44 1 settlement takes place by the exchange on the  
03:44 2 exchange, and therefore, the location of the  
03:44 3 exchange.

03:44 4 Q. If the trade required settlement  
03:44 5 on a blockchain, how would that affect your  
03:44 6 opinion about where the trade took place, if  
03:44 7 it would?

03:44 8 A. It wouldn't. The trade becomes  
03:44 9 binding and valid as soon as orders are  
03:44 10 matched on the exchange.

03:44 11 Q. Okay. Let's move on to --

03:44 12 THE WITNESS: Is it possible to  
03:44 13 take a break?

03:44 14 MR. SYLVESTER: Do you want to  
03:44 15 take a break?

03:44 16 THE WITNESS: Would that be okay?

03:44 17 MR. SYLVESTER: Sure.

03:44 18 Absolutely. Let's go off the record.

03:44 19 THE VIDEOGRAPHER: The time now  
03:44 20 is 3:43 p.m. This concludes Media 6.  
03:44 21 Off the record.

04:04 22 (Recess taken from 3:43 p.m. to  
04:04 23 4:04 p.m.)

04:04 24 THE VIDEOGRAPHER: The time is  
04:04 25 4:04 p.m. This begins Media 7. On the

04:04 1 record.

04:04 2 BY MR. SYLVESTER:

04:04 3 Q. Professor, let's turn to  
04:04 4 paragraph 99 of your report. That's on page  
04:04 5 54. The second sentence starts:

04:04 6 "I conclude that for all but four  
04:04 7 of the exchanges listed in Table A,  
04:04 8 there is no indication that offers are  
04:04 9 made on the exchanges in the US or that  
04:05 10 trades on these exchanges become final  
04:05 11 in the US."

04:05 12 Do you see that?

04:05 13 A. (Document review.)

04:05 14 Okay.

04:05 15 Q. Can you please describe the facts  
04:06 16 that, in your view, support that conclusion?

04:06 17 A. In Table A I set out four indicia  
04:06 18 of location that I believe provide a credible  
04:06 19 and informative account of where that exchange  
04:06 20 is located, and based on those four indicia, I  
04:06 21 can exclude or include a particular exchange  
04:06 22 from whether or not it is situated in or  
04:06 23 outside the United States.

04:06 24 Q. Do you see the next sentence:

04:06 25 "While a small handful of the

04:06 1 exchanges" -- actually, strike that.

04:06 2 Are all the facts that underlie  
04:06 3 your opinion that I just read in  
04:06 4 paragraph 99 set forth in Table A?

04:06 5 MS. ZORNBERG: Objection.

04:06 6 A. The -- Table A sets out the  
04:07 7 application of the four indicia to the  
04:07 8 exchanges listed in Table A.

04:07 9 Q. And in the application of your  
04:07 10 indicia, you concluded that certain facts were  
04:07 11 relevant in forming your opinion. Is that  
04:07 12 right?

04:07 13 A. I concluded that certain indicia,  
04:07 14 the four indicia I mentioned, were the indicia  
04:07 15 that I looked for in determining the location  
04:07 16 of the different exchanges.

04:07 17 Q. And you applied those indicia to  
04:07 18 each of the exchanges in your Table A. Right?

04:07 19 A. Yes.

04:07 20 Q. Okay. And the facts that are  
04:07 21 relevant to the indicia that you applied to  
04:07 22 the 24 exchanges are set forth in Table A.  
04:07 23 Correct?

04:07 24 MS. ZORNBERG: Objection.

04:07 25 A. Table A --



04:07 1 Q. Go ahead.

04:07 2 A. Table A sets out references that  
04:07 3 speak to where -- to what these indicia are  
04:08 4 with respect to each of the exchanges listed  
04:08 5 in Table A.

04:08 6 Q. Okay. Let's look at Table A.  
04:08 7 Let's just start on page 59, please.

04:08 8 Do you see the first row on Table  
04:08 9 A says "Binance"?

04:08 10 A. Yes.

04:08 11 Q. Okay. Are there any other facts  
04:08 12 about Binance that are relevant to your  
04:08 13 conclusions set forth in paragraph 99 that are  
04:08 14 not listed in Table A?

04:08 15 A. Table A identifies and lists the  
04:08 16 four key indicia that I conclude are essential  
04:08 17 for establishing the location of a  
04:08 18 cryptocurrency exchange. Table A, with  
04:08 19 respect to Binance, sets out how these four  
04:08 20 indicia applied in the case of Binance.

04:09 21 MS. ZORNBERG: I have a request  
04:09 22 to go off the record just for a moment.

04:09 23 MR. SYLVESTER: Sure. Let's go  
04:09 24 off the record.

04:09 25 MS. ZORNBERG: Okay.

04:09 1 THE VIDEOGRAPHER: The time is  
04:09 2 4:09 p.m. This concludes Media 7. Off  
04:09 3 the record.

04:10 4 (Recess taken from 4:09 p.m. to  
04:10 5 4:10 p.m.)

04:10 6 THE VIDEOGRAPHER: The time is  
04:10 7 4:10 p.m. This begins Media 8. On the  
04:10 8 record.

04:10 9 A. I'd like to correct something I  
04:10 10 said.

04:10 11 By MR. SYLVESTER:

04:10 12 Q. Please do.

04:10 13 A. Which is that Table A lists three  
04:10 14 of the indicia that I discussed. In addition,  
04:10 15 I also include observation of where regulators  
04:10 16 believe an exchange is located. And that  
04:10 17 information is not contained with respect to  
04:10 18 the actual Table A references here.

04:10 19 Q. Okay. Maybe you can help me with  
04:10 20 this. The Table A has six columns. Do you  
04:10 21 see that?

04:10 22 A. That's right.

04:10 23 Q. And one column -- the first  
04:10 24 column is "Exchange." Do you see that?

04:10 25 Can you explain which columns

04:10 1 correspond with which indicia?

04:10 2 A. Yes. "Place of  
04:11 3 Incorporation/Domicile," "Place of Business,"  
04:11 4 "Registered Office," that is one indicia. The  
04:11 5 "Location That is Referenced in the Terms of  
04:11 6 Service and Governing Laws," that is a second  
04:11 7 indicia. The perception of market, reasonable  
04:11 8 market participants, that is a third indicia  
04:11 9 as set out in the "Notable Items in Public  
04:11 10 Sources and Media."

04:11 11 Q. Why did you call the final column  
04:11 12 "Notable Items in Public Sources and Media"?

04:11 13 A. It references the perception of  
04:11 14 market participants in relation to where the  
04:11 15 exchanges are believed to be located.

04:11 16 Q. Yes. So why not call it the  
04:11 17 "Perception of Market Participants." Why call  
04:11 18 it "Notable Items in Public Sources and  
04:11 19 Media"?

04:11 20 MS. ZORNBERG: Object to form.

04:11 21 A. The reason I did that was because  
04:12 22 I looked at the credible media sources in  
04:12 23 order to identify and gauge what reasonable  
04:12 24 market participants believe -- where they  
04:12 25 believe an exchange to be located.

04:12 1 Q. I think I'm asking a much more  
04:12 2 basic question, which is why did you select  
04:12 3 the words "Notable Items in Public Sources and  
04:12 4 Media" for your chart?

04:12 5 MS. ZORNBERG: Objection. Asked  
04:12 6 and answered.

04:12 7 A. The fourth indicia also was in  
04:12 8 relation to the regulators' perception.

04:12 9 Q. So the fourth column -- sorry --  
04:12 10 the sixth column in Table A combines both --

04:12 11 MS. ZORNBERG: Object. There's a  
04:12 12 misunderstanding going on.

04:12 13 MR. SYLVESTER: Okay.

04:12 14 MS. ZORNBERG: I don't think the  
04:12 15 witness thought -- realized there was a  
04:12 16 question pending, your last question.  
04:12 17 So she had moved on to talk about where  
04:12 18 the fourth indicia is reflected.

04:12 19 MR. SYLVESTER: I see.

04:13 20 Q. I see. Okay. Let me go back to  
04:13 21 my original question, which I understand  
04:13 22 your -- Ripple's counsel believes it is asked  
04:13 23 and answered, but I don't think I've gotten an  
04:13 24 answer.

04:13 25 I just want to know why is it

04:13 1 that you labeled the column "Notable Items in  
04:13 2 Public Sources and Media"? Why select those  
04:13 3 words?

04:13 4 A. I selected those words because  
04:13 5 that's where I got the information.

04:13 6 Q. Okay. But sitting here today,  
04:13 7 you're explaining that, in fact, that column  
04:13 8 represents sources of information that are  
04:13 9 relevant to the criteria of what, in your  
04:13 10 view, market participants believed as to the  
04:13 11 location of these exchanges?

04:13 12 A. That's how I gauged information  
04:13 13 regarding the perception of market  
04:13 14 participants and where they believed an  
04:13 15 exchange to be located.

04:14 16 Q. Okay. Let's flip back to  
04:14 17 paragraph 99, please. About midway through  
04:14 18 the paragraph, you write:

04:14 19 "Given the possible presence of a  
20 foreign arm on which a trade may have  
21 occurred, it is not determinable in the  
22 abstract whether, for any particular  
23 trade, the transaction became final  
24 within the US or outside the US through  
25 a unit located in a foreign

1 jurisdiction."

04:14 2 My question is just: What does  
04:14 3 the term "foreign arm" mean as used in that  
04:14 4 sentence?

04:14 5 A. (Document review.)

04:14 6 An arm that is not a US arm.

04:15 7 Q. What does the word "arm" mean in  
04:15 8 your answer?

04:15 9 A. An affiliate, a unit -- an  
04:15 10 affiliate or unit of the exchange.

04:15 11 Q. Did you determine for all 24  
04:15 12 exchanges whether or not there was a US  
04:15 13 affiliate or unit associated with each of  
04:15 14 those exchanges?

04:15 15 A. I looked at the list of exchanges  
04:15 16 I received from counsel.

04:15 17 Q. Okay. After you received that  
04:15 18 list, did you take any steps to determine  
04:15 19 whether or not, for any of the exchanges  
04:15 20 listed in Table A, all of -- any of the  
04:15 21 exchanges had a US affiliate or unit?

04:15 22 A. I relied on the exchanges that I  
04:15 23 received from counsel as set out in Table A.

04:15 24 Q. I understand that but I just want  
04:15 25 to -- I want to see if, once you received the

04:15 1 information from counsel that's in Table A,  
04:15 2 whether you took any additional steps.

04:15 3 So once you received that  
04:15 4 information, did you take any steps to  
04:15 5 determine that any of the exchanges listed in  
04:15 6 Table A did or did not have a US affiliate or  
04:16 7 unit?

04:16 8 A. My reliance here was in relation  
04:16 9 to the exchanges set out in Table A. I did  
04:16 10 not go through each and every exchange to  
04:16 11 determine whether they were US units.

04:16 12 Q. Okay. Sitting here today and  
04:16 13 excluding Bittrex, Poloniex, Coinbase, and  
04:16 14 Kraken, do any of the remaining exchanges  
04:16 15 listed in Table A have a US affiliate or unit?

04:16 16 MS. ZORNBERG: Object to the  
04:16 17 form.

04:16 18 A. I did not do specific research  
04:16 19 with respect to each and every exchange listed  
04:16 20 in Table A. I did not -- based on my own  
04:16 21 general understanding, for example, Binance  
04:16 22 has a US affiliate.

04:16 23 Q. Okay. Does bitbank?

04:16 24 A. I can't say specifically.

04:16 25 Q. Is that because you don't know?

04:17 1 A. I can't recall.

04:17 2 MS. ZORNBERG: Objection.

04:17 3 A. I don't know.

04:17 4 Q. Does Bitfinex have a US

04:17 5 affiliate?

04:17 6 A. I believe it does.

04:17 7 Q. Does BitForex have a US

04:17 8 affiliate?

04:17 9 A. I don't know.

04:17 10 Q. Does Bithumb have a US affiliate?

04:17 11 A. I don't know.

04:17 12 Q. Does Bitlish have a US affiliate?

04:17 13 A. I don't know.

04:17 14 Q. Does BitMart have a US affiliate?

04:17 15 A. Does which one?

04:17 16 Q. BitMart?

04:17 17 A. I don't know.

04:17 18 Q. Does Bitmax have a US affiliate?

04:17 19 A. I believe it does.

04:17 20 Q. Does Bittrue have a US affiliate?

04:17 21 A. I don't know.

04:17 22 Q. Does Bitstamp have a US

04:17 23 affiliate?

04:17 24 A. Bitstamp, I believe it does.

04:17 25 Q. Does Bittrex have a US affiliate?



04:17 1 A. Yes.

04:17 2 Q. Does BW have a US affiliate?

04:18 3 A. I don't know.

04:18 4 Q. If you'd like, I'm reading from

04:18 5 page 62 of your report. It's not just --

04:18 6 A. Okay.

04:18 7 Q. You're free to follow along.

04:18 8 Does CoinBene, B-e-n-e, have a US

04:18 9 affiliate?

04:18 10 A. I don't know.

04:18 11 Q. Does CoinOne have a US affiliate?

04:18 12 A. I don't know.

04:18 13 Q. Does DigiFinex have a US

04:18 14 affiliate?

04:18 15 A. I don't know.

04:18 16 Q. Does HitBTC have a US affiliate?

04:18 17 A. I don't know.

04:18 18 Q. Does Huobi Global have a US

04:18 19 affiliate?

04:18 20 A. I believe it may have had one.

04:18 21 Q. In what time period?

04:18 22 A. Around summer 2018 for a period

04:19 23 of time.

04:19 24 Q. Does Korbit have a US affiliate?

04:19 25 A. I don't know.

04:19 1 Q. There's no way I'm going to be  
04:19 2 able to pronounce this. Does the company  
04:19 3 that's doing business as OKEEx have a US  
04:19 4 affiliate?

04:19 5 A. I don't know.

04:19 6 Q. Does Upbit have a US affiliate?

04:19 7 A. I don't know.

04:19 8 Q. Does ZB have a US affiliate?

04:19 9 A. I don't know.

04:19 10 Q. Does ZBG have a US affiliate?

04:19 11 A. I don't know.

04:19 12 Q. For all of the exchanges that you  
04:19 13 are not aware whether or not they have a US  
04:19 14 affiliate, how can you be sure that the trades  
04:19 15 of digital assets on those exchanges did not  
04:20 16 take place in the United States?

04:20 17 MS. ZORNBERG: Object to form.

04:20 18 A. I looked at the exchanges  
04:20 19 provided to me in Table A and applied the  
04:20 20 indicia to those exchanges in Table A.

04:20 21 Q. Okay. Let me ask you a different  
04:20 22 question: Did you take any steps -- strike  
04:20 23 that.

04:20 24 For the exchanges that we just  
04:20 25 discussed where you're not sure whether or not

04:20 1 they have a US affiliate, sitting here today,  
04:20 2 can you -- can you definitively say that  
04:20 3 trades taking place on those exchanges did not  
04:20 4 take place in the United States?

04:20 5 MS. ZORNBERG: Object to form.

04:20 6 A. My opinion was to look at the  
04:20 7 exchanges set out in Table A and to determine  
04:20 8 how trades become final, binding -- and  
04:20 9 binding on exchanges and cryptocurrency  
04:20 10 exchanges and where those trades then become  
04:20 11 final. That was the scope of my opinion.

04:21 12 Q. Let me return to your opinion to  
04:21 13 paragraph 99. About midway through the  
04:21 14 paragraph, you write:

15 "Given the possible presence of a  
16 foreign arm on which a trade may have  
17 occurred, it is not determinable in the  
18 abstract whether, for any particular  
19 trade, the transaction became final  
20 within the US or outside the US through  
04:21 21 a unit located in a foreign  
04:21 22 jurisdiction."

04:21 23 Do you see that?

04:21 24 A. Yes.

04:21 25 Q. Does that sentence that I just

04:21 1 read describe Bittrex, Poloniex, Coinbase, and  
04:21 2 Kraken?

04:21 3 A. It references the fact that  
04:22 4 Bittrex, Poloniex, Coinbase, and Kraken may  
04:22 5 have had foreign affiliates through which  
04:22 6 transactions could have occurred.

04:22 7 Q. Okay. And is it in your view --  
04:22 8 strike that.

04:22 9 Is it your opinion that you're  
04:22 10 unable to conclude that trades on Bittrex,  
04:22 11 Poloniex, Coinbase, and Kraken occurred in the  
04:22 12 US because of the existence of a foreign  
04:22 13 affiliate of those four entities?

04:22 14 A. I wasn't providing a particular  
04:22 15 opinion here. I was merely suggesting for the  
04:22 16 sake of, you know, completeness that one may  
04:22 17 want to look at the particular facts on the  
04:22 18 ground.

04:22 19 The opinion I provide is in  
04:22 20 relation to Table A, and applying those four  
04:22 21 indicia to the exchanges listed on Table A,  
04:22 22 and then identifying, based on those indicia,  
04:22 23 which exchanges can be included within the --  
04:22 24 as US exchanges and which are excluded as US  
04:22 25 exchanges.

04:23 1 Q. So in light of that, why was it  
04:23 2 not important for you to determine whether or  
04:23 3 not any of the remaining 20 exchanges on  
04:23 4 Table A had a US affiliate?

04:23 5 A. The reason I made this  
04:23 6 observation for the sake of completeness is  
04:23 7 because I had reviewed Mr. Gil's deposition,  
04:23 8 which mentioned the fact that he transacted on  
04:23 9 platforms that he believed were located  
04:23 10 offshore.

04:23 11 In addition, with respect to  
04:23 12 Coinbase, I had Coinbase Singapore's terms of  
04:23 13 service. And so, again, for the sake of  
04:23 14 completeness, I mentioned the fact that one  
04:23 15 may want to consider looking at where the  
04:23 16 actual trades take place, given what was said  
04:23 17 by Mr. Gil in his deposition and given the  
04:23 18 fact that my materials included Coinbase  
04:23 19 Singapore's terms of service.

04:23 20 Q. When you say "where the actual  
04:23 21 trades take place" in your answer just now,  
04:23 22 what is it that you mean?

04:24 23 A. If the trades became -- it  
04:24 24 became -- if the orders were submitted to and  
04:24 25 became final on the foreign arm of an exchange

04:24 1 affiliated with Coinbase, Bittrex, Kraken, or  
04:24 2 Poloniex.

04:24 3 Q. If an exchange became -- strike  
04:24 4 that.

04:24 5 If a trade became final on the US  
04:24 6 affiliate arm of an otherwise foreign  
04:24 7 exchange, would that make that trade, in your  
04:24 8 view, occurring in the United States?

04:24 9 A. If the indicia points to that  
04:24 10 exchange as being a US exchange and the trades  
04:24 11 become final on that exchange, that trade  
04:24 12 becomes final in the geographic location of  
04:24 13 the exchange, which, as the indicia would  
04:24 14 point out, would include the US.

04:24 15 Q. Okay. So let me pose a  
04:24 16 hypothetical that, as far as I know -- well,  
04:24 17 strike that.

04:24 18 Let me pose a hypothetical.  
04:24 19 Let's talk about Bitlish again. That's on  
04:24 20 page 61 of your report.

04:25 21 Let's assume -- I'm not saying  
04:25 22 this is true. I'm just saying let's assume as  
04:25 23 a hypothetical that Bitlish has a US  
04:25 24 affiliate.

04:25 25 Are you with me so far?

04:25 1 A. I'm with you so far.

04:25 2 Q. Okay. If a particular trade  
04:25 3 takes place on the US affiliate of Bitlish, in  
04:25 4 your view, would that trade have taken place  
04:25 5 within the United States?

04:25 6 A. Applying those indicia to the  
04:25 7 platform that is a US affiliate of Bitlish, if  
04:25 8 those indicia point to a US location, then the  
04:25 9 US could not be excluded as a geographic  
04:25 10 location where the transaction becomes final.

04:25 11 Q. So my question is: Why wasn't it  
04:25 12 of relevance for you to determine whether many  
04:25 13 of these exchanges listed in Table A had a US  
04:25 14 affiliate in order to reach your opinion?

04:25 15 A. My opinion was simply to identify  
04:26 16 for -- identify the indicia to determine the  
04:26 17 location of the exchange, not to pinpoint any  
04:26 18 particular location where trades become final.  
04:26 19 I applied my indicia to the exchanges given to  
04:26 20 me in Table A, and that was my -- that was the  
04:26 21 scope of my opinion.

04:26 22 Q. So Table A does not reflect your  
04:26 23 opinion as to where any particular trade  
04:26 24 became final. Is that fair?

04:26 25 A. What my opinion -- what my

04:26 1 opinion here does is apply the indicia to  
04:26 2 determine whether or not these indicia can  
04:26 3 exclude or include the US as a possible  
04:26 4 geographic location for a cryptocurrency  
04:26 5 exchange listed in Table A.

04:26 6 Q. Okay. Let me pose another  
04:26 7 hypothetical. Let's say I have made a trade  
04:26 8 on Bitlish. Do you have enough information,  
04:26 9 based on the application of your criteria, to  
04:27 10 say where that trade was finalized?

04:27 11 A. It's not my opinion to give a  
04:27 12 particular location. But applying my indicia  
04:27 13 to the current Bitlish indicia here, it would  
04:27 14 indicate that all the indicia would point to  
04:27 15 the UK.

04:27 16 Q. Okay. Could you conclusively  
04:27 17 determine that that trade happened in the UK?

04:27 18 A. My opinion is simply to look --  
04:27 19 describe how orders are made on cryptocurrency  
04:27 20 exchanges and become final on cryptocurrency  
04:27 21 exchanges, provide the indicia for determining  
04:27 22 location, not to specify a particular location  
04:27 23 with respect to any one exchange.

04:27 24 Q. Is it also true that your opinion  
04:27 25 is -- does not include specifying a particular



04:27 1 location with respect to any one particular  
04:28 2 trade?

04:28 3 A. No, it does not.

04:28 4 Q. Okay. Let's move to paragraph  
04:28 5 101, please. That's on page 55.

6 You write in the first full  
7 sentence:

8 "In determining where offers are  
9 made and where transactions match and  
10 become final, pinpointing the exact  
11 geographic location of cryptocurrency  
12 exchanges poses logistical and  
13 analytical challenges."

04:28 14 Do you see that?

04:28 15 A. I'm sorry, which paragraph are we  
04:29 16 on?

04:29 17 Q. We're on 101 and it's the top of  
04:29 18 page 55. It's the first full sentence on the  
04:29 19 top of page 55.

04:29 20 A. (Document review.)

04:30 21 Q. My question is: What are the  
04:30 22 logistical and analytical challenges that you  
04:30 23 reference in paragraph 101?

04:30 24 A. The logistical and analytical  
04:30 25 challenges here point to the fact that

04:30 1 cryptocurrency exchanges are, relatively  
04:30 2 speaking, newer to the marketplace. Some of  
04:30 3 them may be smaller exchanges.

04:30 4 That may be largely -- the  
04:30 5 smaller exchanges that are -- that include  
04:30 6 people located in different jurisdictions, so  
04:30 7 on and so forth. So it's difficult to  
04:30 8 pinpoint with precise -- with precision  
04:30 9 exactly where the cryptocurrency exchange is  
04:30 10 located.

04:31 11 Q. Okay. Let's move on to paragraph  
04:31 12 102. The first sentence says:

04:31 13 "The mobile, digital nature of  
04:31 14 cryptocurrency exchanges arguably  
04:31 15 exacerbates the challenge of ascribing  
04:31 16 particular weight to various potential  
04:31 17 indicia of location (e.g., location of  
04:31 18 employees, servers, cold key storage) as  
04:31 19 providing definitive 'proof' of the  
04:31 20 location of the exchange on which trades  
04:31 21 are made final."

04:31 22 Do you see that?

04:31 23 A. (Document review.)

04:31 24 Yes.

04:31 25 Q. Focusing just on location of

04:31 1 employees, servers, and cold key storage, in  
04:32 2 forming your opinions in this case, did you  
04:32 3 consider whether or not to ascribe any weight  
04:32 4 to those items as indicia of location of  
04:32 5 cryptocurrency exchanges?

04:32 6 A. I gave it thought. I reflected  
04:32 7 on it. And then I determined that I could not  
04:32 8 credibly put any weight on these factors as  
04:32 9 indicators of location.

04:32 10 Q. Why is that?

04:32 11 A. With respect to which factor?

04:32 12 Q. Let's take servers.

04:32 13 A. With respect to servers, servers  
04:32 14 are located around the world with respect to  
04:32 15 exchanges and the firms that use them. As  
04:32 16 seen in Mr. Gil's testimony, for example, his  
04:32 17 firm locates servers throughout the world.

04:32 18 Servers are really not  
04:32 19 informative at all with respect to the  
04:32 20 location of where an exchange might be or a  
04:32 21 firm might be located, given the fact that  
04:32 22 they proliferate globally in order to enable  
04:33 23 global trading to take place.

04:33 24 Q. Is it true that the exchanges  
04:33 25 that are listed in Table A have servers that

04:33 1 proliferate globally?

04:33 2 A. I couldn't say with respect to  
04:33 3 the exchanges specifically. But as a general  
04:33 4 principle, it is commonplace for firms, for  
04:33 5 exchanges to enable global trading to happen  
04:33 6 to facilitate that process to locate servers  
04:33 7 around the globe.

04:33 8 As such, I consider that to be  
04:33 9 completely uninformative as to where the  
04:33 10 exchange is actually located.

04:33 11 Q. Did you take any steps to  
04:33 12 determine where the servers of the exchanges  
04:33 13 listed in Table A -- strike that.

04:33 14 Did you take any steps to  
04:33 15 determine, with respect to the exchanges in  
04:33 16 Table A, where those exchanges' servers were  
04:34 17 located?

04:34 18 A. Based on my research and  
04:34 19 experience, based on my understanding of  
04:34 20 market structure and trading, I conclude  
04:34 21 strongly that servers in today's modern  
04:34 22 digital global electronic marketplace really  
04:34 23 have no significance whatsoever in providing  
04:34 24 definitive and credible indicia of where an  
04:34 25 exchange or firm is located.

04:34 1 Q. Is it fair to say, then, that you  
04:34 2 did not take any steps to locate where those  
04:34 3 exchanges' servers were because you did not  
04:34 4 think that their location had any relevance?

04:34 5 A. I reflected on the question about  
04:34 6 servers. I thought hard about it. I applied  
04:34 7 my professional experience, research,  
04:34 8 judgment, and concluded strongly that, in  
04:34 9 today's economy and financial marketplace,  
04:34 10 servers are too ubiquitous to be able to  
04:35 11 provide any credible signal as to the location  
04:35 12 of an exchange or firm.

04:35 13 Q. And this question is just focused  
04:35 14 on your methodology that you applied in  
04:35 15 preparing your opinion. So I just want to ask  
04:35 16 you to limit your answer to steps that you  
04:35 17 took or did not take.

04:35 18 Did you take any steps to  
04:35 19 determine where the exchanges on Exhibit A  
04:35 20 have servers?

04:35 21 A. No.

04:35 22 Q. Let's go back to our Bitlish  
04:35 23 example. If everything that you wrote about  
04:35 24 Bitlish in Table A remained the same --

04:35 25 A. Yeah.

04:35 1 Q. -- this is hypothetical -- but  
04:35 2 all of its servers were in the United States,  
04:35 3 would that affect your opinion at all?

04:35 4 A. It would not.

04:35 5 Q. Okay. If you had wanted to  
04:35 6 determine where the exchanges on your Table A  
04:36 7 had their servers, is that something that you  
04:36 8 could have figured out?

04:36 9 MS. ZORNBERG: Objection.

04:36 10 A. I think it would have been very  
04:36 11 difficult to figure out simply because I  
04:36 12 believe that servers are so widespread that  
04:36 13 pinpointing exact servers with respect to  
04:36 14 firms or platforms or exchanges is just very  
04:36 15 difficult logistically in today's marketplace.

04:36 16 Q. If -- understanding you didn't  
04:36 17 want to do it, if you had wanted to do it,  
04:36 18 what steps would you have taken?

04:36 19 MS. BUNTING: Objection.

04:36 20 MS. ZORNBERG: Objection.

04:36 21 A. I think it's a tough question. I  
04:36 22 think I would have researched the issue. I  
04:36 23 would have conducted searches as to where  
04:36 24 servers might be located. I would have to  
04:36 25 really think about that question as to how I

04:36 1 would have approached it exactly.

04:36 2 It's a tough question. I think  
04:36 3 it's ultimately one doomed to failure, given  
04:36 4 the incredible proliferation of servers across  
04:37 5 the globe today.

04:37 6 Q. Is it your view that it would be  
04:37 7 doomed to failure because the information is  
04:37 8 not publicly available?

04:37 9 MS. ZORNBERG: Objection.

04:37 10 A. That's part of it potentially.  
04:37 11 In addition, it's hard to identify. Certain  
04:37 12 servers may not even operate. They may be  
04:37 13 broken. They may not work. They may be old.  
04:37 14 Any number of reasons.

04:37 15 Q. Okay. I want to turn to your  
04:37 16 process of selecting the four criteria that  
04:37 17 you applied.

04:37 18 A. Yeah.

04:37 19 Q. Walk me through what steps you  
04:37 20 took to select those four criteria, please.

04:37 21 A. The steps I took here really  
04:37 22 brought to bear the professional experience  
04:37 23 and judgment that I have developed in my  
04:37 24 career in legal practice as part of my work at  
04:37 25 the World Bank, as part of my research into

04:37 1 market microstructure and international  
04:38 2 financial regulation.

04:38 3 Bringing that process to bear, I  
04:38 4 have thought very carefully during my years in  
04:38 5 practice as well as in my research about where  
04:38 6 transactions become final, where firms are  
04:38 7 located for the purposes of their  
04:38 8 transactions, their home state, for the  
04:38 9 purposes of liability, for the purposes of  
04:38 10 various jurisdictional issues that, when  
04:38 11 attached to them, have thought of those issues  
04:38 12 throughout my career and practice at Clifford  
04:38 13 Chance, World Bank, as well as in my research.

04:38 14 And I brought that judgment to  
04:38 15 bear in identifying four key credible,  
04:38 16 informative signals that would provide a real  
04:38 17 indication of where cryptocurrency exchanges  
04:38 18 could be located, given the difficulties of  
04:38 19 doing so.

04:38 20 Q. Prior to your engagement in this  
04:38 21 case, had you ever considered the question of  
04:38 22 where trades on cryptocurrency exchanges were  
04:39 23 located?

04:39 24 A. I have often. Throughout my  
04:39 25 years in practice, it was very normal to give



04:39 1 thought to various aspects of jurisdiction; as  
04:39 2 to where transactions are happening, where  
04:39 3 firms are located, where settlement finality  
04:39 4 may be taking place in order to determine  
04:39 5 particular risk management or governance that  
04:39 6 may be applicable. That was extremely  
04:39 7 frequent as a part of my practice.

04:39 8 At the World Bank, I was  
04:39 9 frequently engaged in discussions, thinking  
04:39 10 about, researching questions as to  
04:39 11 international insolvency, which oftentimes  
04:39 12 engages questions about location, in order to  
04:39 13 determine aspects such as the center of main  
04:39 14 interests applicable to a particular firm or  
04:39 15 transaction.

04:39 16 In my research, I am teaching as  
04:39 17 well as researching questions about  
04:39 18 international financial institutions. In the  
04:39 19 case of my teaching, I've delivered lectures,  
04:39 20 thought about aspects of location,  
04:40 21 particularly as it pertains to where financial  
04:40 22 institutions develop subsidiaries or branches,  
04:40 23 what difference does that make in terms of how  
04:40 24 transactions are finalized and liability  
04:40 25 arises with respect to the those firms and

04:40 1 institutions.

04:40 2 And so I applied that knowledge  
04:40 3 to the novel question of where cryptocurrency  
04:40 4 exchanges finalize their trades. To me, it  
04:40 5 represented an extremely natural and logical  
04:40 6 extension of my past work.

04:40 7 And I used that substance and  
04:40 8 analysis to apply, in this case, to developing  
04:40 9 the four indicia that I identify here.

04:40 10 Q. I'd like to focus very narrowly  
04:40 11 on the question of where trades on  
04:40 12 cryptocurrency exchanges are finalized.

04:40 13 Prior to your engagement in this  
04:40 14 case, had you ever considered the question of  
04:40 15 where trades on cryptocurrency exchanges were  
04:40 16 finalized?

04:40 17 MS. ZORNBERG: Objection. Asked  
04:40 18 and answered.

04:40 19 A. I reject your premise in the  
04:40 20 sense that you are creating a deep distinction  
04:41 21 between the finalization of trades on  
04:41 22 cryptocurrency exchanges relative to  
04:41 23 traditional exchanges.

04:41 24 As detailed throughout my report,  
04:41 25 cryptocurrency exchanges borrow methodology

04:41 1 for finalizing trades very, very deeply, in  
04:41 2 fact, from traditional exchanges.

04:41 3 So all of the questions that I  
04:41 4 have just discussed, all the material I just  
04:41 5 discussed in my previous answer I feel is  
04:41 6 incredibly applicable and relevant to thinking  
04:41 7 about the question of cryptocurrency exchanges  
04:41 8 precisely because cryptocurrency exchanges  
04:41 9 rely so heavily on their methodologies, on  
04:41 10 traditional exchanges, and how they establish  
04:41 11 their trading systems.

04:41 12 Q. Okay. Focusing narrowly on the  
04:41 13 question of where trades on cryptocurrency  
04:41 14 exchanges are finalized, had you ever written  
04:41 15 any publication whatsoever on that narrow  
04:41 16 topic prior to this report?

04:41 17 A. No.

04:41 18 Q. Okay. Again, prior to your  
04:41 19 engagement in this case, have you ever made  
04:42 20 any kind of public statement about where  
04:42 21 trades on cryptocurrency exchanges are  
04:42 22 finalized?

04:42 23 A. I don't believe so. Then again,  
04:42 24 it's a novel question, so I'm not surprised  
04:42 25 about that.

04:42 1 Q. Okay. Are there any indicia of  
04:42 2 location, other than the ones we've already  
04:42 3 discussed, that you considered including  
04:42 4 within your test but ultimately decided not to  
04:42 5 include?

04:42 6 MS. ZORNBERG: Objection. Asked  
04:42 7 and answered.

04:42 8 You can answer again.

04:42 9 A. So, for example, as detailed in  
04:42 10 102, paragraph, I considered aspects like the  
04:42 11 location of employees, servers, cold key  
04:42 12 storage, for example. And I rejected these  
04:42 13 indicia as being essentially noise that is  
04:42 14 uninformative as to the location of an  
04:42 15 exchange.

04:42 16 Q. Other than location of employees,  
04:43 17 servers, and cold key storage, were there  
04:43 18 additional indicia that you had considered  
04:43 19 including in your methodology but ultimately  
04:43 20 rejected?

04:43 21 A. I think there would have been. I  
04:43 22 can't exactly recall, as I sit here today,  
04:43 23 exactly which ones.

04:43 24 Q. In your view, is the geographic  
04:43 25 location of servers that house a

04:43 1 cryptocurrency exchange's matching engine  
04:43 2 relevant at all to determining where a trade  
04:43 3 on that exchange is finalized?

04:43 4 MS. BUNTING: Objection.

04:43 5 MS. ZORNBERG: Object to form.

04:43 6 A. So there are two aspects to your  
04:43 7 question that I disagree with on their  
04:43 8 fundamental premise; firstly, that servers are  
04:43 9 important in respect of establishing location  
04:43 10 as discussed. I do not believe they are at  
04:43 11 all for the reasons that we just discussed.

04:44 12 In addition, as previously  
04:44 13 discussed throughout, I do not believe that  
04:44 14 matching engines can be distilled to a  
04:44 15 location on a server.

04:44 16 As discussed, matching engines  
04:44 17 comprise the rules and processes of an  
04:44 18 exchange, the governance of an exchange, and  
04:44 19 are far bigger, far more deeply embedded  
04:44 20 within an exchange's institutional presence  
04:44 21 than the simple mechanical matching of one  
04:44 22 byte, b-y-t-e, with another on some server  
04:44 23 somewhere.

04:44 24 Q. Have you reviewed any other  
04:44 25 expert reports in this case? Other than your

04:44 1 own. That's what I mean by "other."

04:44 2 A. I reviewed the rebuttal report of  
04:44 3 Mr. Dewey.

04:44 4 Q. Any others?

04:44 5 A. No.

04:44 6 Q. Other than any testimony that may  
04:44 7 be listed in your materials considered, have  
04:44 8 you reviewed any deposition testimony  
04:44 9 transcripts in this case?

04:44 10 A. I have not.

04:44 11 Q. Okay. The very end of paragraph  
04:45 12 102, page 55, you mentioned, among other  
04:45 13 things, that Bitstamp has servers in Ireland  
04:45 14 and Germany.

04:45 15 Do you see that?

04:45 16 A. (Document review.)

04:46 17 Yes.

04:46 18 Q. How did you determine that  
04:46 19 Bitstamp has servers in Ireland and Germany?

04:46 20 A. I believe it was in one of the  
04:46 21 materials that I've reviewed with respect to  
04:46 22 Bitstamp.

04:46 23 Q. One of the materials cited in  
04:46 24 your report. Is that right?

04:46 25 A. That's right.

04:46 1 Q. Okay. Let's move to paragraph  
04:46 2 104 on page 56, please. The first sentence  
04:46 3 says:

04:46 4 "These indicia might not all be  
04:46 5 applicable for every exchange or even  
04:46 6 knowable for every exchange."

04:46 7 Do you see that?

04:46 8 A. (Document review.)

04:47 9 Yes.

04:47 10 Q. Did it concern you at all in  
04:47 11 forming your opinion that the indicia you  
04:47 12 selected did not always -- weren't always  
04:47 13 knowable for every exchange?

04:47 14 MS. ZORNBERG: Object to form.  
04:47 15 You can answer.

04:48 16 A. It did not bother me at all.

04:48 17 Q. Why is that?

04:48 18 A. This is a new industry. It is to  
04:48 19 be expected that certain information at  
04:48 20 present may not exist or be knowable.

04:48 21 In my opinion, the methodology I  
04:48 22 establish is sound and provides a real world,  
04:48 23 concrete, logical, reasonable understanding of  
04:48 24 location. The fact that not every exchange  
04:48 25 has every indicia, that doesn't -- to me, that

04:48 1 doesn't seem like a problem at all.

04:48 2 Q. Prior to forming your opinions  
04:48 3 set forth in your report, had you ever applied  
04:48 4 this for the four indicia to determine the  
04:48 5 location of trading on any particular  
04:48 6 cryptocurrency exchange?

04:48 7 A. As I stated in my previous  
04:48 8 responses, I addressed the question of  
04:49 9 location on cryptocurrency exchanges in this  
04:49 10 opinion as part of forming this opinion.

04:49 11 This is a brand-new question,  
04:49 12 essentially, in the literature, as far as I'm  
04:49 13 aware. I have taken steps in this opinion to  
04:49 14 bring my professional judgment, experience,  
04:49 15 and research to establishing these four  
04:49 16 indicia. And I believe I do so in a way that  
04:49 17 others in my field would consider to be  
04:49 18 extremely credible.

04:49 19 So this is -- this is my attempt  
04:49 20 to set out four key indicia that I believe  
04:49 21 credibly speak to the location of a  
04:49 22 cryptocurrency exchange. This is the first  
04:49 23 time I'm doing it.

04:49 24 Q. You testified, among other  
04:49 25 things, that this is a brand-new question,



04:49 1 essentially, in the literature, as far as  
04:49 2 you're aware.

04:49 3 Does that mean it's fair to say  
04:49 4 there's not really a literature that addresses  
04:49 5 the issue of where a trade on a cryptocurrency  
04:49 6 exchange takes place?

04:49 7 A. I'll be very clear, this  
04:50 8 literature and answering this question  
04:50 9 intertwines deeply with existing practices,  
04:50 10 with respect to existing literature, with  
04:50 11 respect to international standards, in  
04:50 12 relation to the location of exchanges,  
04:50 13 transactions, and firms.

04:50 14 There is extensive discussion,  
04:50 15 literature, thinking around the question of  
04:50 16 where international firms establish  
04:50 17 themselves, questions of liability, questions  
04:50 18 of locating where particular assets might be  
04:50 19 located. There is a deep literature,  
04:50 20 thinking, and practice surrounding those  
04:50 21 questions.

04:50 22 That literature, practice, and  
04:50 23 experience is very relevant to determining the  
04:50 24 question of how cryptocurrency exchanges  
04:50 25 should be analyzed.

04:50 1 And I've sought to bring that  
04:50 2 research and expertise in the traditional  
04:50 3 marketplace with respect to international  
04:50 4 standards, with respect to market practice, to  
04:51 5 the determination of what four indicia should  
04:51 6 be applied here, to determining the location  
04:51 7 of cryptocurrency exchanges.

04:51 8 Q. Are there any academic articles  
04:51 9 you're aware of that address the specific  
04:51 10 question of where a trade on a cryptocurrency  
04:51 11 exchange takes place?

04:51 12 A. In my opinion, based on the best  
04:51 13 of my belief, I don't believe there is.

04:51 14 Q. Moving to paragraph 105, please,  
04:51 15 the first two sentences say:

04:51 16 "These indicia are important for  
04:51 17 a variety of reasons. They provide  
04:51 18 concrete attributes that are possible to  
04:51 19 identify for the large majority of  
04:51 20 exchanges with a degree of certainty."

04:51 21 Do you see that?

04:51 22 A. (Document review.)

04:53 23 Yes.

04:53 24 Q. My question is: Were you able to  
04:53 25 achieve a greater degree of certainty with

04:53 1 respect to some of your indicia versus other  
04:53 2 indicia?

04:53 3 MS. ZORNBERG: Object to form.

04:53 4 A. I'm not really sure what you  
04:53 5 mean.

04:53 6 Q. Let me provide an example. Like,  
04:53 7 were you able to be more certain about where a  
04:53 8 cryptocurrency exchange was incorporated  
04:54 9 versus market participants' perception of  
04:54 10 where it was located?

04:54 11 A. It really depends on the  
04:54 12 exchange.

04:54 13 Q. Were there instances in which  
04:54 14 your level of certainty varied among indicia  
04:54 15 with respect to a single exchange?

04:54 16 MS. ZORNBERG: Object to form.

04:54 17 A. Take one example. Binance has  
04:54 18 the potential for different places of  
04:54 19 incorporation and domicile. It's difficult to  
04:54 20 establish. However, the terms of service make  
04:54 21 clear that arbitrations are to be undertaken  
04:54 22 in Hong Kong.

04:54 23 So it's very clear to read the  
04:54 24 terms of service and establish choice of venue  
04:54 25 for disputes. However, establishing the place

04:55 1 of incorporation and domicile is more  
04:55 2 difficult.

04:55 3 Q. Are you offering any opinion as  
04:55 4 to where the books and records of any  
04:55 5 particular exchange listed on your Table A are  
04:55 6 located?

04:55 7 A. I'm not.

04:55 8 Q. Okay. Are you offering any  
04:55 9 opinion that any of the exchanges listed on  
04:55 10 your Table A are subject to the recordkeeping  
04:55 11 demands that you describe in paragraph 105?

04:55 12 MS. ZORNBERG: Object to form.

04:55 13 A. Are you talking about a  
04:55 14 particular exchange? I'm not sure I fully  
04:55 15 appreciate and understand the question.

04:55 16 Q. Fair enough. Let's break it  
04:55 17 down. You discuss in paragraph 105, in your  
04:55 18 words, "strict recordkeeping demands on  
04:55 19 regulated entities."

04:55 20 Do you see that?

04:55 21 MS. ZORNBERG: What page are you  
04:55 22 on?

04:55 23 MR. SYLVESTER: Sorry. The very  
04:56 24 bottom of 56, or almost the very bottom.

04:56 25 A. (Document review.)

04:56 1 Q. Do you see that?

04:56 2 A. I do.

04:56 3 Q. Okay. So my question is whether  
04:56 4 or not you're offering any opinion as to  
04:56 5 whether or not any of the exchanges that are  
04:56 6 listed in your Table A are subject to any of  
04:56 7 the strict recordkeeping demands that you  
04:56 8 reference in paragraph 105.

04:56 9 A. What I'm saying here is that the  
04:56 10 indicia identified in Table A includes the  
04:56 11 place of incorporation domicile, place of  
04:56 12 business, registered office, governing laws.

04:56 13 The governing laws, with respect  
04:56 14 to a particular exchange, may subject the  
04:56 15 exchange to particular recordkeeping  
04:56 16 requirements. That is commonplace with  
04:57 17 respect to the regulation of exchanges in  
04:57 18 traditional markets.

04:57 19 So it is certainly very  
04:57 20 reasonable to imagine that a governing law  
04:57 21 with respect to a particular exchange is -- as  
04:57 22 identified as part of the indicia, would  
04:57 23 establish the same with respect to some of the  
04:57 24 exchanges established in Table A.

04:57 25 Q. But sitting here today, are you

04:57 1 aware of any such recordkeeping demands that  
04:57 2 are applicable to any of the exchanges that  
04:57 3 you list in Table A?

04:57 4 MS. ZORNBERG: Object to form.

04:57 5 A. I haven't researched the  
04:57 6 different laws of the different countries  
04:57 7 listed here in the terms of service.

04:57 8 Q. So is it fair to say that you're  
04:57 9 not sure one way or the other whether the  
04:57 10 exchanges listed in Table A are subject to  
04:57 11 recordkeeping demands?

04:57 12 MS. ZORNBERG: Objection.

04:57 13 A. As I sit here today, I can't make  
04:57 14 that determination.

04:57 15 Q. In a case where an exchange may  
04:58 16 conduct most of its business in a different  
04:58 17 jurisdiction from its registered domicile, in  
04:58 18 your view, is its registered domicile still  
04:58 19 relevant to the analysis of where a trade on  
04:58 20 that exchange takes place?

04:58 21 A. Yes.

04:58 22 MS. ZORNBERG: Objection.

04:58 23 Q. Why is that?

04:58 24 A. Yes, the place of incorporation  
04:58 25 and domicile may determine the corporate forum

04:58 1 that the particular exchange inhabits. It may  
04:58 2 determine the potential rules that apply in  
04:58 3 the event that exchange becomes insolvent.

04:58 4 It may have certain applicability  
04:58 5 as to the particular rules that govern the  
04:59 6 internal recordkeeping of the exchange, as I  
04:59 7 set out in this report as part of my thinking  
04:59 8 here.

04:59 9 So even though the place of  
04:59 10 business may be in a different jurisdiction,  
04:59 11 it's perfectly under- -- it's perfectly  
04:59 12 reasonable to think that an exchange may still  
04:59 13 be subject to various obligations, demands  
04:59 14 with respect to the corporate forum that it  
04:59 15 has and that is registered in its place of  
04:59 16 incorporation and domicile.

04:59 17 Q. Did you take any steps to  
04:59 18 determine -- strike that.

04:59 19 For the exchanges that are listed  
04:59 20 in your Table A, did you take any steps to  
04:59 21 determine as part of your analysis whether  
04:59 22 these exchanges conducted most of their  
04:59 23 business in a place other than their domicile?

04:59 24 A. Table A sets out information that  
04:59 25 I've gathered as referenced here. That sets

05:00 1 out what I believe to be the place of business  
05:00 2 with respect to the different exchanges listed  
05:00 3 in Table A, and as derived from information  
05:00 4 that is referenced in Table A.

05:00 5 Q. Can you --

05:00 6 A. And footnotes.

05:00 7 Q. I'm sorry. Can you define for me  
05:00 8 what "domicile" means as used in your Table A?

05:00 9 A. For me, "domicile" essentially  
05:00 10 means the place where the exchange may be  
05:00 11 registered, essentially the home base where  
05:00 12 the exchange has been incorporated and is  
05:00 13 based.

05:00 14 Q. Is there any difference in your  
05:00 15 mind between place of incorporation and  
05:00 16 domicile?

05:00 17 A. I can't say for sure. Different  
05:00 18 countries may apply different jurisdictional  
05:00 19 criteria to what they consider to be  
05:00 20 incorporation versus how they consider an  
05:00 21 exchange to be naturalized within their  
05:01 22 particular jurisdiction.

05:01 23 Q. For each of the exchanges listed  
05:01 24 on Exhibit A, for the column that says "Place  
05:01 25 of Incorporation/Domicile," do you know



05:01 1 whether the entry reflects the place of  
05:01 2 incorporation or the domicile or both?

05:01 3 A. I would have to go through the  
05:01 4 footnotes to the different exchanges to be  
05:01 5 able to answer your question. I mean, the  
05:01 6 information that I have here is set out in the  
05:01 7 footnotes. To be able to make an attempt at  
05:01 8 answering it, I would need to go through the  
05:01 9 different footnotes.

05:01 10 Q. But prior to today, you went  
05:01 11 through the sources and the footnotes and made  
05:01 12 the determination that each of these had the  
05:01 13 place of incorporation or domicile reflected  
05:01 14 in Table A. Is that right?

05:01 15 A. That's right.

05:02 16 Q. Can we go to paragraph 103 on  
05:02 17 page 56. I'd like to ask a question about  
05:02 18 your third criteria which reads:

05:02 19 "Third, in what country do market  
05:02 20 participants and the public believe the  
05:02 21 exchange does business?"

05:02 22 Do you see that?

05:02 23 A. (Document review.)

05:03 24 Q. What is the relevance of what the  
05:03 25 public believes as to where a cryptocurrency

05:03 1 exchange is located as distinct from market  
05:03 2 participants?

05:03 3 A. The --

05:03 4 MS. ZORNBERG: Object to form.

05:03 5 You can answer.

05:03 6 A. Indicia here references the view  
05:04 7 of reasonable market participants, including  
05:04 8 members of the public, obviously, as to what  
05:04 9 they considered to be the location of an  
05:04 10 exchange. I believe that's very important  
05:04 11 because it goes directly to the business of  
05:04 12 what an exchange does, which is try to attract  
05:04 13 traders to the platform to transact in  
05:04 14 cryptocurrencies.

05:04 15 Q. In concluding for purposes of  
05:04 16 application of your indicia what market  
05:04 17 participants believe as to the geographic  
05:04 18 locations of an exchange, I believe you've  
05:04 19 testified that you relied on your review of  
05:04 20 the user agreements, and you also relied on  
05:04 21 the sources that are cited in the footnotes  
05:04 22 beneath your Table A.

05:04 23 Are there any other sources that  
05:04 24 inform that application of that criteria?

05:05 25 MS. ZORNBERG: Objection. Asked

05:05 1 and answered.

05:05 2 You can answer again.

05:05 3 A. Those are the main sources of  
05:05 4 information that I relied on with respect to  
05:05 5 this indicia.

05:05 6 Q. Your fourth indicia is what  
05:05 7 regulators believe with respect to the  
05:05 8 location of an exchange. Is that correct?

05:05 9 A. That's correct.

05:05 10 Q. Why is that relevant to the  
05:05 11 question of the geographic location of where a  
05:05 12 trade occurs?

05:05 13 A. It's extremely relevant in my  
05:05 14 opinion. It reflects what informed regulators  
05:05 15 believe the regulation -- the location of an  
05:05 16 exchange to be. In my mind, that is extremely  
05:05 17 important because international regulators  
05:05 18 tend to be informed.

05:05 19 Furthermore, they are subject to  
05:05 20 and apply international standards as  
05:05 21 promulgated by IOSCO in relation to  
05:05 22 cooperation between regulators to address  
05:06 23 issues of mutual concern.

05:06 24 In that regard, steps taken by  
05:06 25 regulators pursuant to IOSCO standards reflect

05:06 1 formal procedures that regulators are subject  
05:06 2 to under these different standards, providing  
05:06 3 an indication of what informed regulators are  
05:06 4 doing, affirmative steps they are taking,  
05:06 5 recognizing the jurisdiction of another  
05:06 6 country, another location with respect to the  
05:06 7 firm whose location they are -- with respect  
05:06 8 to the firm that they are seeking information  
05:06 9 about.

05:06 10 Q. In preparing your opinions, did  
05:06 11 you speak with anyone from any of the  
05:06 12 exchanges listed in Table A?

05:06 13 A. No, I did not.

05:06 14 Q. In preparing your opinion, did  
05:06 15 you speak to any traders who have traded on  
05:06 16 the exchanges listed in Table A?

05:06 17 A. No, I did not.

05:06 18 Q. Turning to paragraph 104 again,  
05:07 19 the second sentence says:

05:07 20 "Not every factor is necessary,  
05:07 21 and no factor is sufficient, to  
05:07 22 understand the location of the  
05:07 23 exchanges."

05:07 24 Do you see that?

05:07 25 A. (Document review.)

05:07 1 Yes.

05:07 2 Q. Is it fair to say that that  
05:07 3 sentence, at least in part, describes the  
05:07 4 application of your methodology as set forth  
05:07 5 in your report?

05:07 6 MS. ZORNBERG: Objection to form.  
05:07 7 You can answer.

05:07 8 A. That sentence describes the  
05:07 9 application of the methodology to the  
05:07 10 exchanges in Table A.

05:07 11 Q. How did you reach your opinion  
05:07 12 for purposes of the application of your  
05:07 13 methodology that not every factor is necessary  
05:08 14 and no factor is sufficient?

05:08 15 A. I set out in my opinion what the  
05:08 16 indicia do is establish a constellation of  
05:08 17 informative factors that help in providing a  
05:08 18 guidepost as to where the location of an  
05:08 19 exchange is.

05:08 20 And what that does for the  
05:08 21 purposes of my opinion is allow that exchange  
05:08 22 to either be included or excluded as an  
05:08 23 exchange that is located within the United  
05:08 24 States.

05:08 25 Q. Are there any factors in your

05:08 1 methodology that are necessary to draw a  
05:08 2 conclusion as to where a trade -- sorry --  
05:08 3 strike that.

05:08 4 Are there any factors in your  
05:08 5 methodology to conclude -- that are necessary  
05:08 6 to conclude where a cryptocurrency exchange is  
05:08 7 located?

05:08 8 A. My methodology sets out four  
05:08 9 indicia. It doesn't give particular weight to  
05:08 10 any specific one of those indicia. What it  
05:09 11 does is to set out four credible, informative,  
05:09 12 reasoned criteria that provide a set of  
05:09 13 factors to consider when trying to establish  
05:09 14 the location of a cryptocurrency exchange.

05:09 15 Q. Is it fair to say that none --  
05:09 16 there's no one factor that's more important  
05:09 17 than others under your methodology?

05:09 18 A. My methodology sets out the four  
05:09 19 factors. It does not choose one particular  
05:09 20 indicia as being particularly dispositive over  
05:09 21 and above the others.

05:09 22 Q. Understanding no one is  
05:09 23 dispositive, are there any that are more  
05:09 24 important than the others?

05:09 25 A. It sets out four factors to guide

05:09 1 regulators, provides a framework. It does not  
05:09 2 stipulate as to what weight should be given to  
05:09 3 each of these different factors.

05:09 4 Q. Do you think that someone could  
05:09 5 apply your four factors to the same set of  
05:10 6 exchanges and come up with a different  
05:10 7 conclusion about where the exchange is  
05:10 8 located?

05:10 9 MS. ZORNBERG: Objection.

05:10 10 A. My opinion here is not to provide  
05:10 11 particular locations for the different  
05:10 12 exchanges in Table A. My -- the scope of my  
05:10 13 opinion is to set out the four indicia and to  
05:10 14 decide on that basis whether they're indicia  
05:10 15 that can include or exclude the US as a  
05:10 16 possible location of the different exchanges  
05:10 17 in Table A.

05:10 18 MR. SYLVESTER: Can we take a  
05:10 19 brief break, please.

05:11 20 MS. ZORNBERG: Yes.

05:11 21 THE VIDEOGRAPHER: The time is  
05:11 22 5:11 p.m. This concludes Media 8. Off  
05:11 23 the record.

05:32 24 (Recess taken from 5:11 p.m. to  
05:32 25 5:32 p.m.)

05:32 1 THE VIDEOGRAPHER: The time now  
05:32 2 is 5:32. This begins Media 9. On the  
05:32 3 record.

05:32 4 BY MR. SYLVESTER:

05:32 5 Q. Professor, let's turn back to  
05:32 6 paragraph 102 on page 55, please.

05:32 7 Why was it that you decided to  
05:32 8 exclude from your indicia of location,  
05:32 9 location of employees?

05:32 10 A. So the reason why I rejected that  
05:32 11 indicia as being an informative one was  
05:33 12 because employees could be located anywhere,  
05:33 13 particularly given what we know today about  
05:33 14 remote work. People are working from  
05:33 15 everywhere.

05:33 16 And so to me -- or could  
05:33 17 potentially be working from any location --  
05:33 18 and so to me, that did not feature as a  
05:33 19 reliable indicator of location.

05:33 20 Q. If all of the management of a  
05:33 21 specific cryptocurrency exchange were located  
05:33 22 in one place, would that change your opinion  
05:33 23 as to that factor's relevance?

05:33 24 A. It would not.

05:33 25 Q. Why was it that you decided to



05:33 1 include cold key storage as a possible indicia  
05:33 2 of location of cryptocurrency exchange?

05:34 3 (Discussion off the record.)

05:34 4 A. The reason I excluded cold key  
05:34 5 storage was because cold keys are essentially  
05:34 6 the passwords to the user accounts at the  
05:34 7 exchanges. They are incredibly portable and  
05:34 8 they could be essentially anywhere.

05:34 9 They could be carried in  
05:34 10 someone's pocket. They could be moved to any  
05:34 11 locale. So to me, that was a completely  
05:34 12 unreliable indicator of the location of an  
05:34 13 exchange.

05:34 14 Q. I want to pose for you another  
05:35 15 hypothetical, going back to Bitlish. What if  
05:35 16 100 percent of the traders trading on Bitlish  
05:35 17 were trading from the US?

05:35 18 Would that affect your opinion at  
05:35 19 all as to the location of Bitlish?

05:35 20 A. My indicia here set out the four  
05:35 21 criteria. Where the traders are located that  
05:35 22 are trading into Bitlish, that is not relevant  
05:35 23 as a part of my criteria.

05:35 24 Q. I believe that you testified  
05:35 25 earlier that you were aware that Binance has a

05:35 1 US affiliate. Is that right?

05:35 2 A. Based on my general knowledge in  
05:35 3 this area, as well as, I believe, a couple of  
05:35 4 sources that may be in the report, yes.

05:35 5 Q. Is the existence of a US  
05:36 6 affiliate for Binance an indication that some  
05:36 7 offers or trades on Binance may have become  
05:36 8 final in the United States?

05:36 9 A. I'm sorry. Could you repeat the  
05:36 10 question.

05:36 11 Q. Sure. Is the existence of a US  
05:36 12 affiliate for Binance an indication that some  
05:36 13 offers or trades on Binance may have become  
05:36 14 final in the United States?

05:36 15 A. I'm not sure I understand. Why  
05:36 16 would that be an indication as to why that  
05:36 17 would happen?

05:36 18 Q. I believe that if you return to  
05:36 19 paragraph 99, you'll recall we discussed  
05:36 20 earlier your opinion that, because certain  
05:36 21 exchanges have a foreign arm, it is not  
05:36 22 determinable in the abstract whether for any  
05:36 23 particular trade the transaction became final  
05:36 24 within the United States.

05:36 25 Do you remember that?

05:36 1 A. That's right.

05:36 2 Q. Okay. So I'm just trying to flip  
05:36 3 that analogy the other way. So since Binance  
05:37 4 has a US affiliate, is it possible that some  
05:37 5 of the trades on Binance became final in the  
05:37 6 United States?

05:37 7 A. So I think my methodology here  
05:37 8 you may be slightly misunderstanding in how  
05:37 9 you're presenting it. The four indicia here  
05:37 10 provide a guide as to the location of a  
05:37 11 particular cryptocurrency exchange.

05:37 12 I applied these four indicia, the  
05:37 13 25 exchanges, to determine whether one can  
05:37 14 exclude the US as a possible location where  
05:37 15 these exchanges may be based.

05:37 16 I made the observation here based  
05:37 17 on my reading of the Gil deposition as well as  
05:37 18 my possession of and my review of the Coinbase  
05:37 19 Singapore terms that, for completeness, it may  
05:37 20 be worth looking at the potential for trades  
05:37 21 to have occurred through the foreign  
05:37 22 affiliates of Coinbase, Kraken, Bittrex, and  
05:38 23 Poloniex.

05:38 24 With respect to that observation,  
05:38 25 the second part, one could apply my indicia to

05:38 1 the foreign affiliates of Kraken, Poloniex,  
05:38 2 Bittrex, and Coinbase to establish where they  
05:38 3 may likely be located and whether they may be  
05:38 4 including or excluding the US as an indicia.

05:38 5 So my methodology does not  
05:38 6 require looking at the different affiliates.  
05:38 7 What it's doing is identifying four core  
05:38 8 indicia, applying them to the exchanges in  
05:38 9 Table A as a way to include or exclude the US  
05:38 10 as a possible place where indicia may point to  
05:38 11 as a location for an exchange.

05:38 12 Q. Okay. So since Binance has a  
05:39 13 United States arm, how is it that you're able  
05:39 14 to exclude the US as a possible location for  
05:39 15 Binance?

05:39 16 A. I looked at the exchanges in  
05:39 17 Table A. I applied my indicia to those  
05:39 18 exchanges in Table A. Binance US was not  
05:39 19 on -- one of the exchanges on Table A.

05:39 20 Q. How did you determine which  
05:39 21 exchanges to include in Table A?

05:39 22 MS. ZORNBERG: Object to form.

05:39 23 A. I received those specific  
05:39 24 exchanges from counsel.

05:39 25 Q. Do you have any understanding of

05:40 1 the significance, if any, of this set of 24  
05:40 2 exchanges reflected in Table A?

05:40 3 A. I believe --

05:40 4 MS. ZORNBERG: I will say, you  
05:40 5 can answer without disclosing  
05:40 6 communications with counsel.

05:40 7 A. My understanding is that there  
05:40 8 may have been trades of XRP on the exchanges  
05:40 9 listed in Table A.

05:40 10 Q. If one of the exchanges on your  
05:40 11 Table A had a US parent company, would that be  
05:40 12 any indication of -- that some offers or  
05:40 13 trades on that exchange may have become final  
05:40 14 in the United States?

05:40 15 A. No. The exchange is as set out  
05:41 16 in Table A.

05:41 17 MS. ZORNBERG: Hold on, the audio  
05:41 18 is echoing. It stopped but it was -- we  
05:41 19 were getting feedback. Everything the  
05:41 20 witness said was being -- spitting back  
05:41 21 out.

05:41 22 Coming from your --

05:41 23 Q. Do you want to say something  
05:41 24 again, Professor?

05:41 25 A. I'm so sorry. I think I lost

05:41 1 my--

05:41 2 Q. That's fine. I just -- I think  
05:41 3 we're good.

05:41 4 MS. ZORNBERG: Okay. It stopped.

05:41 5 THE VIDEOGRAPHER: Somebody might  
05:41 6 have unmuted themselves on Zoom.

05:41 7 Q. Let me repeat the question if  
05:41 8 that's okay.

05:41 9 A. Thank you.

05:41 10 Q. If one of the exchanges on Table  
05:41 11 A had a US parent company, would that be any  
05:41 12 indication that some of the offers or trades  
05:41 13 on that exchange may become final in the  
05:41 14 United States?

05:41 15 A. What my report does is set out  
05:41 16 the four indicia that point to the location of  
05:41 17 a cryptocurrency exchange looking at aspects  
05:42 18 such as registered office, domicile, place of  
05:42 19 business, to determine whether that indicia  
05:42 20 points to the US or otherwise as a possible  
05:42 21 location.

05:42 22 The parent as a separate legal  
05:42 23 entity has no bearing on the application of  
05:42 24 these indicia to the actual exchange itself.  
05:42 25 The indicia could be applied to the parent to

05:42 1 determine where its possible location could  
05:42 2 be.

05:42 3 But with respect to the exchanges  
05:42 4 set out in Table A as well as more generally  
05:42 5 with respect to the methodology, it sets out  
05:42 6 four criteria that help point to the location  
05:42 7 of a cryptocurrency exchange, where trades  
05:42 8 become final on that exchange. And that's  
05:42 9 really what the methodology is doing here.

05:42 10 Q. Do you know one way or the other  
05:42 11 whether defendants employed market makers to  
05:42 12 sell XRP?

05:42 13 MS. ZORNBERG: Objection.

05:42 14 A. I really have no idea.

05:43 15 Q. Okay.

05:43 16 A. I don't know.

05:43 17 Q. Did you as part of your  
05:43 18 analysis -- strike that.

05:43 19 You cite Mr. Gil's testimony at  
05:43 20 various places in your report. Correct?

05:43 21 A. I do, yes.

05:43 22 Q. Do you know what firm Mr. Gil is  
05:43 23 affiliated with?

05:43 24 A. I believe he's affiliated with  
05:43 25 GSR.

05:43 1 Q. And do you know what, if any,  
05:43 2 relationship GSR has with Ripple?

05:43 3 A. My understanding based on  
05:43 4 Mr. Gil's deposition is that he was an  
05:43 5 execution agent.

05:43 6 Q. When you say "execution agent,"  
05:43 7 will you tell me what you mean by that?

05:43 8 A. I believe he --

05:43 9 MS. ZORNBERG: Objection.

05:43 10 THE WITNESS: Sorry.

05:43 11 MS. ZORNBERG: You can answer.

05:43 12 A. I believe he helped facilitate  
05:43 13 trades for the defendants.

05:43 14 Q. Okay. XRP trades. Is that  
05:43 15 right?

05:44 16 A. I --

05:44 17 MS. ZORNBERG: Object to form.

05:44 18 A. I'm not sure. I believe -- I  
05:44 19 believe so based on my recollection of the  
05:44 20 deposition.

05:44 21 Q. Okay. Have you reviewed the  
05:44 22 terms of service of any agreements that GSR  
05:44 23 may have signed with any cryptocurrency  
05:44 24 exchange?

05:44 25 A. I have reviewed the terms of



05:44 1 service as set out in my report. I have not  
05:44 2 reviewed any terms of service specific to GSR.

05:44 3 Q. Other than GSR, are you aware of  
05:44 4 any other market makers the defendants  
05:44 5 employed to sell XRP?

05:44 6 MS. ZORNBERG: Objection. Lack  
05:44 7 of foundation.

05:44 8 Q. Go ahead.

05:44 9 A. No.

05:44 10 Q. As part of your work in forming  
05:44 11 your opinions, did you analyze which exchanges  
05:44 12 accepted US customers?

05:44 13 A. No.

05:44 14 Q. As part of your work in forming  
05:44 15 your opinion, did you analyze which, if any,  
05:45 16 exchanges affirmatively blocked US customers  
05:45 17 from trading on their exchanges?

05:45 18 A. Could you repeat the question.

05:45 19 Q. Sure. As part of your work in  
05:45 20 forming your opinion, did you assess whether  
05:45 21 any of the exchanges listed in your Table A  
05:45 22 took any steps to block US customers from  
05:45 23 trading on those exchanges?

05:45 24 A. In forming my opinion, I did not  
05:45 25 look at that as a factor relevant to forming

05:45 1 my opinion about where trades become final and  
05:45 2 where exchanges are located.

05:45 3 Q. And you're not opining on where  
05:45 4 any particular trade became final as part of  
05:45 5 your opinion, are you?

05:45 6 A. I'm not.

05:45 7 Q. Could we turn to page -- sorry --  
05:45 8 paragraph 113, page 70 of your report.

05:46 9 A. I'm sorry, I missed that.

05:46 10 Q. Fair enough. Paragraph 113, page  
05:46 11 70.

05:46 12 A. Thank you very much.

05:46 13 Q. I'll direct you to the second  
05:46 14 sentence where you say:

05:46 15 "First, I am aware that certain  
05:46 16 of the exchanges listed in Table A,  
05:46 17 including those that I do not believe  
05:46 18 finalize trades in the US, have had  
05:46 19 contact with or submitted license  
05:46 20 applications to certain US regulators."

05:46 21 Do you see that?

05:46 22 A. (Document review.)

05:47 23 Q. My first question is: Are you  
05:47 24 aware of any instances of the exchanges listed  
05:47 25 in Table A submitting license applications

05:47 1 other than those that are cited in  
05:47 2 Footnote 287?

05:47 3 A. Other than that -- other than  
05:48 4 those cited in the footnotes, I'm not aware of  
05:48 5 other exchanges listed in Table A submitting  
05:48 6 applications.

05:48 7 Q. And then one sentence later, you  
05:48 8 say:

05:48 9 "Importantly, to the best of my  
05:48 10 understanding, these interactions with  
05:48 11 regulators do not constitute evidence  
05:48 12 that these exchanges were finalizing  
05:48 13 trades in the US."

05:48 14 Do you see that?

05:48 15 A. (Document review.)

05:48 16 Yes.

05:48 17 Q. What is your understanding  
05:48 18 described in that sentence based upon?

05:48 19 A. It's based upon my general  
05:48 20 knowledge of the marketplace and what the  
05:48 21 purposes of licensure tends to be.

05:48 22 The purposes of licensure with  
05:48 23 respect to FinCEN registration, for example,  
05:49 24 based on my general research and  
05:49 25 understanding, is not necessarily related to

05:49 1 any meaning to finalize trades. It can be  
05:49 2 done for any number of reasons that have  
05:49 3 nothing to do with that.

05:49 4 Q. Other than the money services  
05:49 5 business registrant search -- strike that.

05:49 6 Are you aware of any of the  
05:49 7 exchanges listed in Table A applying for any  
05:49 8 kind of license with any US regulator other  
05:49 9 than money services business license?

05:49 10 A. I'm not aware.

05:49 11 Q. Okay. Going back to 113, the  
05:49 12 next sentence, you say:

05:49 13 "Rather, a more plausible account  
05:49 14 is that these exchanges were trying to  
05:49 15 get permission to engage in some  
05:49 16 exchange business in the US (e.g.,  
05:49 17 through registration with FinCEN as a  
05:50 18 money services business."

05:50 19 Why is that more plausible in  
05:50 20 your view than the conclusion that an exchange  
05:50 21 was seeking a license from a US regulator  
05:50 22 because it finalizes trades in the US?

05:50 23 A. The purposes of registering with  
05:50 24 FinCEN, as far as I understand it, is to gain  
05:50 25 permission to be able to conduct potential

05:50 1 payments related money services business, or  
05:50 2 sometimes defensively as a way to avoid  
05:50 3 inadvertently being caught in US money  
05:50 4 laundering and terrorist financing  
05:50 5 regulations, or as a potential aspirational  
05:50 6 matter where the exchange may be looking for  
05:50 7 some future presence in the US.

05:50 8 Q. How did you come to the  
05:50 9 understanding of the purposes that you just  
05:50 10 listed?

05:50 11 A. Based on my general research and  
05:50 12 knowledge in this area.

05:50 13 Q. Were you aware of those purposes  
05:50 14 prior to your engagement in this case?

05:50 15 A. I was aware of FinCEN, what  
05:51 16 FinCEN does as part of my general knowledge in  
05:51 17 the financial markets and regulatory sphere.

05:51 18 Q. In forming your opinion in this  
05:51 19 case, did you consider the definition of  
05:51 20 "exchange" under the US securities laws?

05:51 21 MS. ZORNBERG: Objection.

05:51 22 A. No, I did not.

05:51 23 Q. Do you have any understanding of  
05:51 24 the factors that the SEC uses in determining  
05:51 25 whether an exchange has to register with the

05:51 1 commission?

05:51 2 A. I'm not here to give a legal  
05:51 3 opinion or to look at legal factors.

05:51 4 Q. Understanding that, I'm just  
05:51 5 asking you for your understanding. Do you  
05:51 6 have an understanding of the factors that the  
05:51 7 SEC uses in determining whether an exchange  
05:51 8 has to register with the commission?

05:51 9 A. Again, without -- with the caveat  
05:51 10 that I'm not giving a legal opinion but a  
05:51 11 market structure opinion, I'm aware.

05:51 12 Q. Does the commission focus on the  
05:51 13 physical location that orders are matched on  
05:51 14 the exchange in making that determination?

05:51 15 MS. ZORNBERG: Objection. Calls  
05:51 16 for a legal conclusion.

05:51 17 A. I'm not here to give a legal  
05:52 18 opinion.

05:52 19 Q. Understanding that, I'm just  
05:52 20 asking about the facts that are or are not in  
05:52 21 your head.

05:52 22 MS. ZORNBERG: Yeah, but it's so  
05:52 23 far outside of scope that it's not  
05:52 24 proper.

05:52 25 MR. SYLVESTER: I'm not sure

05:52 1           that -- I mean, are you instructing her  
05:52 2           not to answer? It doesn't sound  
05:52 3           privileged to me. I'm asking just  
05:52 4           whether she knows or she doesn't know.

05:52 5           MS. ZORNBERG: Please note my  
05:52 6           objection.

05:52 7           MR. SYLVESTER: Fair enough.

05:52 8           MS. ZORNBERG: Improper line of  
05:52 9           questioning.

05:52 10          MR. SYLVESTER: Okay.

05:52 11 BY MR. SYLVESTER:

05:52 12          Q.     Does the commission focus on the  
05:52 13           physical location that orders are matched on  
05:52 14           an exchange in order to determine whether an  
05:52 15           exchange has to register with the commission?

05:52 16          MS. ZORNBERG: Objection.

05:52 17          A.     Again, with the caveat that I'm  
05:52 18           not giving a legal opinion, I would have to go  
05:52 19           ahead and consult the statute book and the  
05:52 20           application of the statutes. So that question  
05:52 21           is a complicated question.

05:52 22          Q.     Do you know, sitting here today,  
05:52 23           whether, in determining whether an exchange  
05:52 24           has to register with the commission, the  
05:52 25           commission looks at whether any component of

05:52 1 the exchange is used by US investors?

05:52 2 MS. ZORNBERG: Objection.

05:52 3 A. I'm not here to give a legal  
05:52 4 opinion. With that caveat, again, I'd have to  
05:53 5 go and do research.

05:53 6 Q. Again, just asking your  
05:53 7 understanding, do you know whether or not the  
05:53 8 commission looks at whether any component of  
05:53 9 an exchange is located in the US in  
05:53 10 determining whether or not that exchange has  
05:53 11 to register with the commission?

05:53 12 MS. ZORNBERG: Objection.

05:53 13 A. With the caveat I'm not giving a  
05:53 14 legal opinion, that's a question for which I  
05:53 15 would have to go and do research.

05:53 16 Q. Let's look at the last sentence  
05:53 17 of paragraph 113, please. That's on the top  
05:54 18 of page 71. It says:

05:54 19 "Thus, absent other specific  
05:54 20 indicia, and based on the approach  
05:54 21 outlined in this section, I would  
05:54 22 continue to conclude that trades on the  
05:54 23 exchanges in Table A other than Bittrex,  
05:54 24 Poloniex, Coinbase, and Kraken would not  
05:54 25 have occurred in the US."



05:54 1 My question is just, what are the  
05:54 2 other specific indicia that might affect your  
05:54 3 opinion as set forth at the end of paragraph  
05:54 4 113?

05:54 5 A. (Document review.)

05:54 6 So what that sentence refers to  
05:54 7 is the fact that there are no indicia with  
05:54 8 respect to the 25 exchanges, other than the  
05:54 9 four mentioned here, that point to the US as a  
05:54 10 plausible location for the exchanges mentioned  
05:54 11 outside of the four mentioned here.

05:55 12 Q. Let's look at your final  
05:55 13 paragraph, paragraph 114. Second sentence,  
05:55 14 you write:

05:55 15 "Based on my research, it is my  
05:55 16 understanding that many cryptocurrency  
05:55 17 exchanges tend to avoid becoming located  
05:55 18 in the US and falling within the purview  
05:55 19 of US regulators."

05:55 20 What's the basis for that  
05:55 21 statement?

05:56 22 A. (Document review.)

05:56 23 The basis for that statement is  
05:56 24 my general research and understanding of the  
05:56 25 marketplace.

05:56 1 Q. Is that research and  
05:56 2 understanding of the marketplace that is  
05:56 3 specific to the preparation of this report, or  
05:56 4 something that predated your report?

05:56 5 A. Predated.

05:56 6 Q. Why is it, if you have an  
05:56 7 understanding, that many cryptocurrency  
05:56 8 exchanges tend to avoid becoming located in  
05:56 9 the US and falling within the purview of US  
05:56 10 regulators?

05:56 11 A. Speculating, hypothetically. I  
05:56 12 can't speak to the exchanges themselves.  
05:56 13 Based on what I've read, I think it's a  
05:56 14 general fear of being caught potentially  
05:56 15 within regulation inadvertently. That appears  
05:57 16 to be the driving reason.

05:57 17 Q. When you say regulation, what is  
05:57 18 it that you're referring to?

05:57 19 A. Potentially being caught within  
05:57 20 the purview of US regulation.

05:57 21 Q. The last two sentences of 114  
05:57 22 say:

05:57 23 "Within this environment, it  
05:57 24 makes sense that most of the exchanges  
05:57 25 noted above would locate themselves in

05:57 1 jurisdictions outside of the US and  
05:57 2 would seek to avoid falling within US  
05:57 3 territorial borders. To the extent they  
05:57 4 do so, it is likely to be an accidental  
05:57 5 and inadvertent mistake or by way of  
05:57 6 minor, inconsequential physical presence  
05:57 7 that does not affect the location of the  
05:57 8 underlying exchange or where trades on  
05:57 9 the exchange become final."

05:58 10 Do you see that?

05:58 11 A. Yes.

05:58 12 Q. What is your basis for concluding  
05:58 13 that "to the extent they do so, it is likely  
05:58 14 to be an accidental and inadvertent mistake or  
05:58 15 by way of minor, inconsequential physical  
05:58 16 presence"?

05:58 17 A. Based on my general research and  
05:58 18 understanding, as cited to the source here,  
05:58 19 the, for example, the website about how to  
05:58 20 build a cryptocurrency exchange, it is  
05:58 21 generally, as noted here, a sentiment that  
05:58 22 exchanges try and avoid falling within US  
05:58 23 regulation, within the jurisdiction of the US,  
05:58 24 and therefore, it is likely that if they do  
05:59 25 so, it would be accidental.

05:59 1 Q. What is an example of an  
05:59 2 accidental or inadvertent mistake that could  
05:59 3 have that consequence?

05:59 4 A. Hard to speculate. They may --  
05:59 5 it's hard to speculate.

05:59 6 Q. What did you have in mind when  
05:59 7 you wrote that phrase?

05:59 8 A. For example, potentially they  
05:59 9 establish a presence here of some description.

05:59 10 Q. Same question. What's an example  
05:59 11 of a minor, inconsequential physical presence?

05:59 12 A. For example, a post box or a  
05:59 13 registered office.

05:59 14 Q. In your view would a post office  
05:59 15 box or a registered office be relevant to the  
06:00 16 geographic location of the exchange?

06:00 17 A. The four indicia do not mention  
06:00 18 offices, post boxes, and so, no.

06:00 19 Q. Did anyone assist you in  
06:00 20 generating the four indicia that you apply in  
06:00 21 this report?

06:00 22 A. This was my work.

06:00 23 Q. Be that as it may, did anyone  
06:00 24 assist you in generating the four indicia that  
06:00 25 you apply in your report?

06:00 1 A. What do you mean --

06:00 2 MS. ZORNBERG: Objection.

06:00 3 THE WITNESS: Sorry.

06:00 4 A. I don't know what you mean by  
06:00 5 "assist" me.

06:00 6 Q. Did you receive input from anyone  
06:00 7 as to what four indicia you should select as  
06:00 8 your methodology in your report?

06:00 9 A. No, these were my indicia based  
06:00 10 on my research, my experience, and expertise.

06:00 11 MR. SYLVESTER: Okay. I don't  
06:00 12 have any further questions at this time.

06:00 13 Do you have redirect?

06:01 14 MS. ZORNBERG: Let me just  
06:01 15 consult with counsel.

06:01 16 MR. SYLVESTER: Sure.

06:01 17 (Continued on the next page.)

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06:01 1 THE VIDEOGRAPHER: The time is  
06:01 2 6:00 p.m. This concludes Media 9.  
06:01 3 The time is 6:01 p.m. This  
06:01 4 continues Media 9. Still on the record.  
06:01 5 MS. ZORNBERG: Nothing further on  
06:01 6 behalf of the defendants.  
06:01 7 MR. SYLVESTER: Wonderful.  
06:01 8 Professor, thank you very much  
9 for your time today.  
10 THE WITNESS: Thank you very much  
11 for your time today. I really  
12 appreciate it.  
13 MR. SYLVESTER: Off the record.  
14 Okay.  
06:02 15 (Discussion off the record.)  
06:02 16 THE VIDEOGRAPHER: The time is  
17 6:02 p.m. This concludes Media 9 of 9.  
18 Off the record.

19 (Time noted: 6:02 p.m.)

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CERTIFICATE OF WITNESS

I, YESHA YADAV, do hereby declare under penalty of perjury that I have read the entire foregoing transcript of my deposition testimony, or the same has been read to me, and certify that it is a true, correct and complete transcript of my testimony given on February 11, 2022, save and except for changes and/or corrections, if any, as indicated by me on the attached Errata Sheet, with the understanding that I offer these changes and/or corrections as if still under oath.

\_\_\_\_\_ I have made corrections to my deposition.

\_\_\_\_\_ I have NOT made any changes to my deposition.

Signed: \_\_\_\_\_

YESHA YADAV

Dated this \_\_\_\_\_ day of \_\_\_\_\_ of 20\_\_\_\_.

C E R T I F I C A T E

STATE OF NEW YORK )

: ss.

COUNTY OF NASSAU )

I, PATRICIA A. BIDONDE, a Notary  
Public within and for the State of New  
York, do hereby certify:

That YESHA YADAV, the witness  
whose deposition is hereinbefore set  
forth, was duly sworn by me, and that  
such deposition is a true record of the  
testimony given by the witness.

I further certify that I am not  
related to any of the parties to this  
action by blood or marriage, and that I  
am in no way interested in the outcome  
of this matter.

IN WITNESS WHEREOF, I have  
hereunto set my hand this day, February  
11, 2022.

PAT

Stenographer  
Registered Professional Reporter  
Realtime Certified Reporter



ERRATA SHEET FOR THE TRANSCRIPT OF:

Case Name: SEC v Ripple

Dep Date: February 11, 2022

Deponent: Yesha Yadav

Pg.	Ln.	Now Reads	Should Read	Reason
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Date Yesha Yadav

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E R R A T A (Continued)

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